November 1955

finish

THE MAGAZINE OF

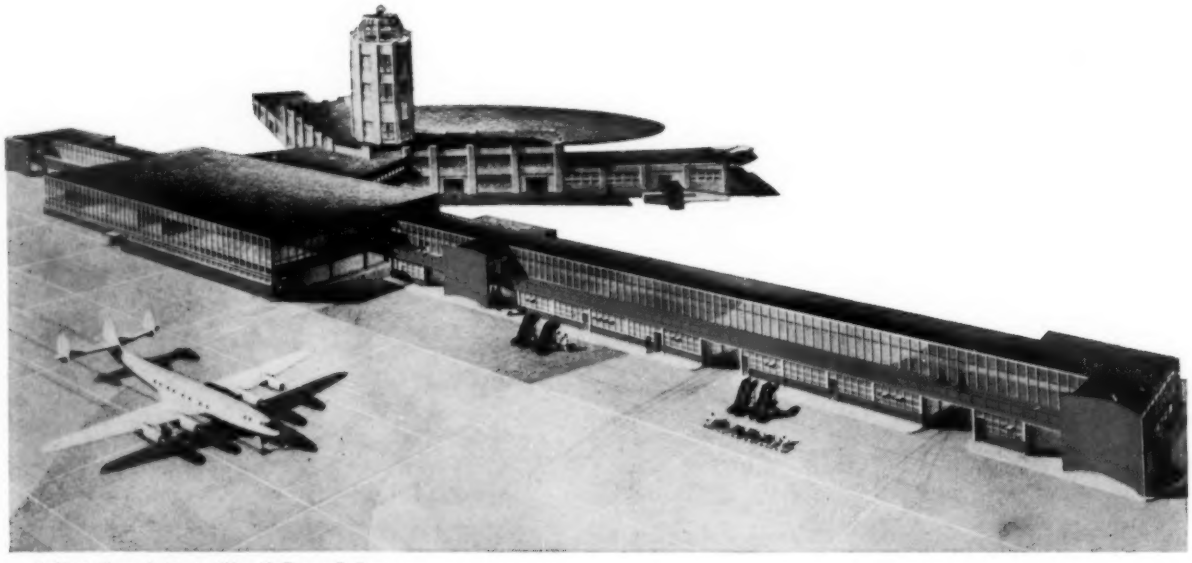
Appliance AND

Metal Products MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

BUFFALO AIRPORT EXTENSION USES
double-faced Porcelain Enameled Panels

double-faced



Architect: Harry A. Morris, AIA, with Thomas B. Bourne Associates, Inc. Consulting Engineers, Washington, D. C.
General Contractor: Frederick T. Williams Co., Buffalo

COLOR *by "Ceramic"*

Whether Your Order is Large or Small . . . *CALL "CERAMIC"* for Fast Service on Dependable Colors, Chemicals, and Supplies for Enamel, Glass, and Pottery.

Another example of the architectural adaptability of porcelain enamel is strikingly demonstrated in the new Buffalo Airport Extension. Nearly 800 double-faced, insulated panels, totaling over 31,000 square feet are used in the building. For this installation, the panels were a product of "Ing-Rich" of Beaver Falls.

The outside of the panels, facing the runway, is a rich French Green, a lifetime finish of enduring beauty, scratch-resistant, easy to clean. The inside, blending with the interior decorative scheme, is enameled in Indian Turquoise or Swedish Red.

Color is furnished by "Ceramic."

CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.

Only PORCELAIN ENAMEL
gives your product all this...

TOUGH AND DURABLE. Even whirling roller skates fail to mar this counter top made of porcelain enamel on Armco Enameling Iron. Other surface finishes often scratch or peel.

RESISTS HEAT. Burning cigarettes or searing skillets don't damage the rock-like surface of porcelain enamel. It doesn't discolor when subjected to ordinary temperatures.

EASY TO CLEAN. Stains from crayons or lipstick wipe away easily with a damp cloth. The surface of porcelain enamel on Armco Enameling Iron is hard, smooth, non-porous.

and COLOR too

No other material can match the beauty and wear resistance of porcelain enamel and give you a full range of colors too. Can this unique combination of advantages add sales appeal to *your* product?

Write to us for the name of an experienced job enameler near you. You'll find that he can help you work out problems of design and production. You'll find too, that most job enamelers specify Armco Enameling Iron as the base metal for their product. They know that Armco quality stays high from one shipment to the next. That's how it earned its reputation as the "World's Standard Enameling Iron."

ARMCO STEEL CORPORATION
1655 Curtis Street, Middletown, Ohio
Send me the names of job enamelers who can be of assistance.
We manufacture_____

Name_____

Company_____

Street_____

City_____ Zone_____ State_____

ARMCO®

ARMCO STEEL CORPORATION 1655 CURTIS ST., MIDDLETOWN, OHIO

SPECIAL STEELS

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

Are you watching both sides of the coin ?

KETONE LACQUER SOLVENTS

give you higher quality

and a price advantage, too

LACQUER SOLVENT SYSTEMS based on *ketones* have so many inherent advantages they have become standard with the nation's foremost formulators of both nitrocellulose and vinyl coatings. Here are a few good reasons why:

- **Complete flexibility in formulating.** You add the latent solvents you prefer.
- **Yield solutions with high solids content**—or permit high diluent content, with either *aromatics* or *aliphatics.*
- **High purity** . . . *at no extra cost.* You get *all* active solvent.
- **Impart excellent flow,** blush resistance, high gloss.
- **Price advantage, too!** Low specific gravity ketones favor *you* when you buy by the pound and sell by the gallon.

The Shell Chemical "quality group" of solvents includes MEK, MIBK, EAK, MIBC, IPA and Ethyl Alcohol. Ask your Shell Chemical representative to help you evaluate ketones for your own formulations.

SHELL CHEMICAL CORPORATION

CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE

380 Madison Avenue New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis

IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

November • 1955

VOL. 12 • NO. 11

MAJOR APPLIANCE DIVISION OF NEMA PLANS FOR A BIG '56 22
ENAMELED ALUMINUM ENTERS THE FINE ART FIELD 28
VACUUM CLEANER MANUFACTURERS MEETING 32
FINISHING BEFORE FABRICATION 35
ASSEMBLY OPERATIONS FOR HOME LAUNDRY APPLIANCES AT HOTPOINT — third in a series 40
HOBBY, INCORPORATED by Gilbert C. Close 47
STEEL KITCHEN CABINET MANUFACTURERS MEET 55
ARCHITECTS PREFER COLOR (BRAB CONFERENCE) 57
RESUMES OF FORUM PAPERS 73
FEDERATION OF PAINT AND VARNISH PRODUCTION CLUBS ANNUAL MEETING 79
SAFE TRANSIT SECTION 83

FEATURES

FROM THE EDITOR'S MAIL 7
INDUSTRY MEETINGS 12
THE SUGGESTION BOX 17
THE FINISH SPOTLIGHT — Kelvinator automatic washer .. 21
FINISH FOTO-NEWS 58
INDUSTRY NEWS AND PERSONALS 61
NEW SUPPLIES AND EQUIPMENT 66
NEW LITERATURE 82
SUPPLIER NEWS 100

MISCELLANEOUS

HOME LAUNDRY CONFERENCE PROGRAM 65
PEI FORUM PHOTOS 76
ADVERTISERS' INDEX 102

finish

MONTHLY TRADE PUBLICATION
Established January 1944
Published by
DANA CHASE PUBLICATIONS
York Street at Park Avenue
Elmhurst, Illinois
Telephone • TErrace 4-5280
TErrace 4-5281

•

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. Includes technical and practical information on plant facilities and manufacturing problems from raw metal to safe delivery of the finished product, with special emphasis on fabrication, metal preparation, metal finishing, assembly, and packaging and shipping.

Free controlled circulation to management, purchasing, engineering and key plant personnel in metal product manufacturing plants. To others, subscription price is $5.00 per year, domestic. To all other countries $8.00 per year (U.S. funds).

Editor and publisher • DANA CHASE
Editor's assistant • R. W. RICHTER
News editor • BARBARA BEISSWANGER
Western editor • GILBERT C. CLOSE
Customer service • DANA CHASE, JR.

Technical consultants
PROF. A. I. ANDREWS
PROF. R. M. KING
PROF. L. L. CARRICK
JAMES M. LEAKE
RALPH F. BISBEE

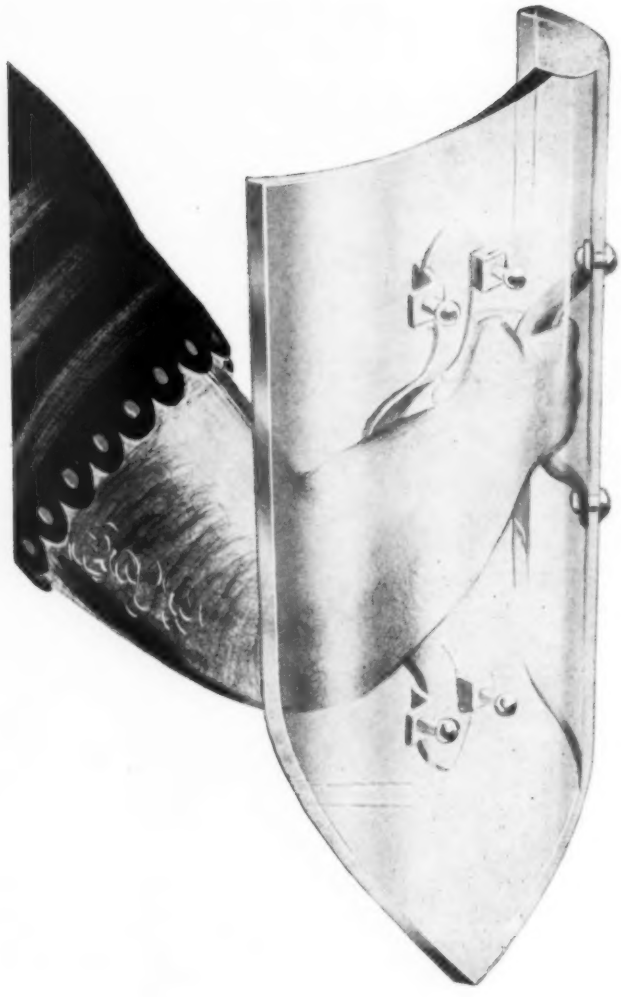
Accepted under the act of June 5, 1934, at Aurora, Illinois, authorized January 7, 1948.

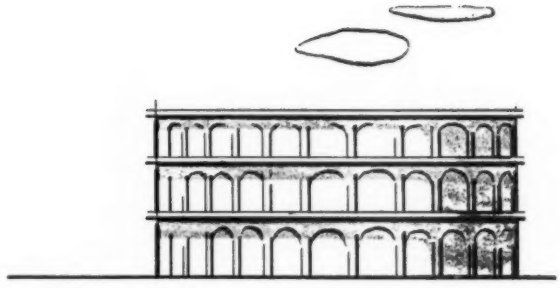
COPYRIGHT © 1955
DANA CHASE PUBLICATIONS
PRINTED IN U.S.A.

BPA NBP

finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT





this *Glass* shield,

while symbolic,

represents some of the things a master craftsman can do with glass. It can be bowed to fit any desired shape, it can be drilled and shaped to exact tolerances.

It can be tempered to impart extreme resistance to impact — that is why safety regulations demand glass as a safety barrier when danger exists.

Let glass improve the utility of your product while it beautifies it.

Let Marsco's craftsmen-engineering team impart to your product all the advantages of glass

Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- CLOCK & TIMER CRYSTALS
- OVEN DOORS
- RADAR EQUIPMENT
- AIRCRAFT ACCESSORIES
- PHOTOGRAPHIC EQUIPMENT
- LIGHT LENSES
- DIALS & NAME PLATES
- TELEVISION EQUIPMENT
- INSTRUMENTS
- MEDICAL EQUIPMENT

Special shapes for: Instruments, Gauges, Household and Industrial Appliances.

Marsco

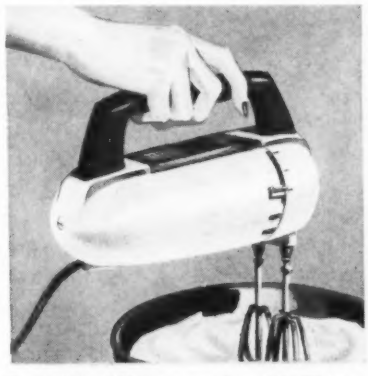
MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.

How to make these three appliances more modern

THE consumer demand for small appliances that are both more efficient and more beautiful has created important new applications for aluminum.

Many manufacturers now specify Kaiser Aluminum to give their appliances selling features that no other material can match—plus major production economies. Aluminum is extremely workable, economical to fabricate, and requires no further treatment for decorative or protective purposes.

Portable Rotisseries made with Kaiser Aluminum will be more efficient because aluminum reflects heat as no other material can. And because aluminum is so light in weight, the unit will be easier to move and cost less to ship. Exteriors may soon be anodized in a variety of colors for outstanding beauty.



Portable Mixers made with Kaiser Aluminum will be *truly* portable, thanks to aluminum's light weight—about one-third as much as brass, copper or steel. Aluminum is also strong and durable to give years of trouble-free service. And it's rust-proof and easy to clean.

Toasters made of Kaiser Aluminum will have an inner surface that has high heat reflectivity. Thus, the toaster will operate more quickly, with a more uniform distribution of heat. In addition, aluminum may be colorfully anodized or porcelain enameled to harmonize with kitchen or dining area.

INVESTIGATE these important ideas for your new small appliance designs without delay. Benefit from aluminum's unique combination of advantages, including: light weight with strength, thermal conductivity, electrical conductivity, heat and light reflectivity, corrosion resistance, handsome appearance, non-toxicity, ease of fabrication, economy.

An experienced Kaiser Aluminum design engineer will be glad to work with you immediately, at your request. Contact any Kaiser Aluminum sales office listed in your phone directory. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office,* Palmolive Bldg., Chicago 11, Illinois; *Executive Office,* Kaiser Bldg., Oakland 12, California.

Kaiser Aluminum

setting the pace—in growth, quality and service

it's as easy as this...

FOR
GAFFERS & SATTLER

PERMA-VIEW

the window you can see through always!

"out of our carton— into your door"

Yes sir, it's as easy as this. The PERMA-VIEW oven door window comes to you ready for immediate installation in your range — to add a sales feature second to none.

The strong steel encased, double pane PERMA-VIEW window incorporates the finest quality heat resisting glass. It is mechanically sealed to prevent infiltration of vapors and to eliminate "fogging." This "non-fog" window meets the constantly growing demand for "visible baking."

More and more range manufacturers are turning to PERMA-VIEW as a practical, economical and effective sales feature for their new models. We will gladly work with your engineering department in adapting its use to your range. Write or phone for complete information.

Phone MArket 4-2256

Gaffers & Sattler, A Division of Utility Appliance Corp., is another satisfied Mills Products customer The 1955 Gaffers & Sattler double oven model shown at left is equipped with two PERMA-VIEW windows.

MILLS PRODUCTS, INCORPORATED

1015 W. MAPLE ROAD • WALLED LAKE, MICHIGAN

from the Editor's Mail

Forming water heater tanks

Gentlemen:

We read with interest an article by George W. Landis on page 41 of the May, 1955, issue of *finish*. . . .

We find your publication to be a mine of most valuable information but in this instance we note with regret the brevity of the article. Our object in writing you is to ascertain whether an unabbreviated copy of the paper presented by Mr. G. W. Landis could be made available.

A. W. Burns
Works Manager
United Metal Industries Ltd.
Brisbane, Australia

The article you referred to was published complete as developed by the author. As we remember the author's comment at the time, it was something like this: "To outline the production aspects of enameling water heater tanks would require something in the nature of four hours' reading time. Realizing this, I took only one small part of the problem to cover under the heading, 'Forming Tanks for Enameling'." Another article on the subject which should interest you appeared in the June, 1955, issue of *finish* under the title, "The Golden Egg," by Lee R. Erwin, Day & Night Division, Carrier Corporation. This is a very important subject for all *finish* readers and you will find frequent articles in future issues on engineering and production of water heater tanks. — Eds.

AHLMA and the dryer division

Gentlemen:

Thank you very much for your thoughtfulness in sending me a copy of the special AHLMA section of the September issue of *finish*.

Your report for the Dryer Division Committee is exactly the way we see it for 1955, and very timely!

We at Hotpoint are also very proud and pleased with your feature series on the new Hotpoint Home Laundry plant. Next to an actual plant tour, the photos and story are a true to life interpretation of our newest plant addition.

Please convey my personal thanks to Mr. Chase and the others of your staff responsible for the selection and the development of the Hotpoint story for your Home Laundry feature series.

E. J. Sorensen
Manager, Special Markets
Hotpoint Co.
Chicago, Illinois

Thank you Mr. Sorensen. Our editors were especially pleased to get your comment on the AHLMA and Hotpoint features.

Cairo wants text books

Gentlemen:

We are interested in all the enamelware publications and researches that appear to cover all the problems of such industry. We should be much obliged if you would send us a detailed list for such bulletins, books and magazines to establish a technical library in our works.

Cairo Metal Products S.A.E.
Cairo, Egypt

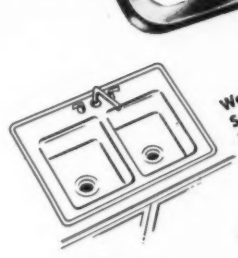
A complete list of text books and monthly publications has been mailed.

more letters on Page 9 →

VANSEAL

FRAMES for BUILT-IN SINKS and RANGES

PATENT NOS. 2,440,741, 2,704 370



Watertight
Sanitary
Easy to Install

Made by specialists in the designing and manufacture of clamp-down frames

YOU CAN DEPEND ON THESE FEATURES

Vance has pioneered in the manufacture of stainless steel clamp-down frames and has already produced more than a million!

When you use VanSeal Frames on your built-in sinks and ranges, you can be sure of a frame that will fit perfectly! Installations can be made with confidence.

VanSeal Frames assure easy, sanitary, self-aligning installation and added beauty for your counter-top and built-in range units. Benefit from Vance Industries' long experience in making frames for all types of built-in units.

...Specify VanSeal and be sure!

PERFECT BENDS—EVERY TIME
Each corner radius is exact, assuring a tailor-made fit.

LEGS ARE ALWAYS VERTICAL—STRAIGHT
The vertical leg of every VanSeal Frame is at a perfect 90° angle to the top flange to assure a tightly-sealed installation.

EXACT UNIFORMITY
VanSeal Frames of the same size are consistently alike in their measurements.

INVISIBLE WELDS
Welded so perfectly—finished so smoothly—you can't locate the weld on the top surface.

**Call your VanSeal Distributor*

or write for catalog to

VANCE INDUSTRIES, INC.
2108 Jackson Avenue · Evanston, Illinois

At left—Typical of our main tops for ranges, also washers and dryers, is this one-piece stamping including the back rail and front water fall.

Below—One of our presses set up to produce the top panel as illustrated.

Quality medium and large stampings produced economically for many industries

You get Quality stampings at reasonable prices because:
We analyze the stamping you want—
We determine the most economical way to produce it—
We develop and build the production dies—
We rearrange our press equipment to set up the most economical production line.

METAL YOUNGSTOWN PRODUCTS

Remember—if you use medium or large stampings and you want quality—call in Youngstown Metal Products. A phone call is all it takes.

YOUNGSTOWN METAL PRODUCTS COMPANY

Youngstown 1, Ohio

editor's mail → *from Page 7*

Retiring to Florida

Gentlemen:

I have always appreciated and enjoyed *finish* over a period of years.

However, I have now retired from business and next month I shall depart for Florida. I therefore request that you eliminate my name from your mailing list.

Again, thanks.

H. Wm. Peterson, Plant Supt.
Lu-Mi-NUS Signs, Inc.
1428 W. Farragut Ave.
Chicago 40, Illinois

Thank you for your communication. You go to Florida with our best wishes for many happy years of retirement.

"consistently read . . . "

Gentlemen:

. . . we consistently read *finish* magazine and find it to be an excellent publication.

E. L. Brown
Vice President
Vulcan-Hart Mfg. Co., Inc.
Baltimore, Maryland

"Keep up the good work"

Gentlemen:

. . . we read and enjoy your fine magazine. Keep up the good work.

J. Visentin
Plant Superintendent
National Eng. & Mfg. Co.
Sedalia, Missouri

"Low temperature ceramic coatings . . . "

Gentlemen:

I think the article in September *finish* was very well done, and I appreciate very much your interest in this story and certainly your insistance that it get done.

Hoyt P. Steele
President
Benjamin Electric Mfg. Co.
Des Plaines, Illinois

No subscription survey card?

Gentlemen:

Something happened! I haven't received a copy of *finish* for a long time and certainly miss the informative material in every issue. Evidently, I failed to return a subscription survey card or something; in which case, I'm sorry; will you place my name on the circulation list again?

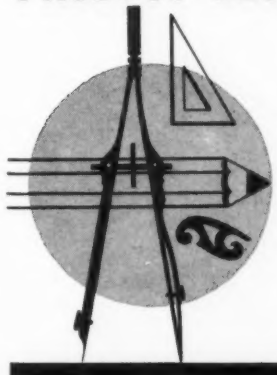
My old address was: 1201 Cedar Street, Elkhart, Indiana. Will you please now send the magazine to: Harold Wilson, Vitreous Steel Products Company, Nappanee, Indiana.

One more thing, our files are complete from February, 1948. to March, 1955. Do you have copies from March, 1955, to the present date that you could send me?

Harold C. Wilson
Chief Chemist
Vitreous Steel Products Co.
Nappanee, Ind.

Yes, we do require the subscription form for our circulation verification and audit. Your subscription has been renewed. We will also provide as many back issues as possible to complete your permanent file.

PRODUCT DESIGN-ENGINEERS



Here's an Important *Service* For You

Let Our Experienced Designers Work With You in Creating Smart, Modern Hardware . . . Engineered to Cost You Less

National Lock design engineers are specialists in creating distinctive hardware to meet your individual requirements. With an extensive background in materials and production techniques, they can help you secure more for your dollar investment. These National Lock stylists will work independently or in cooperation with your own designers. This service covers a wide range of items, including zinc die cast, aluminum die cast, stampings, plastics in both compression and injection molding. Write us for full information on how we can serve you.

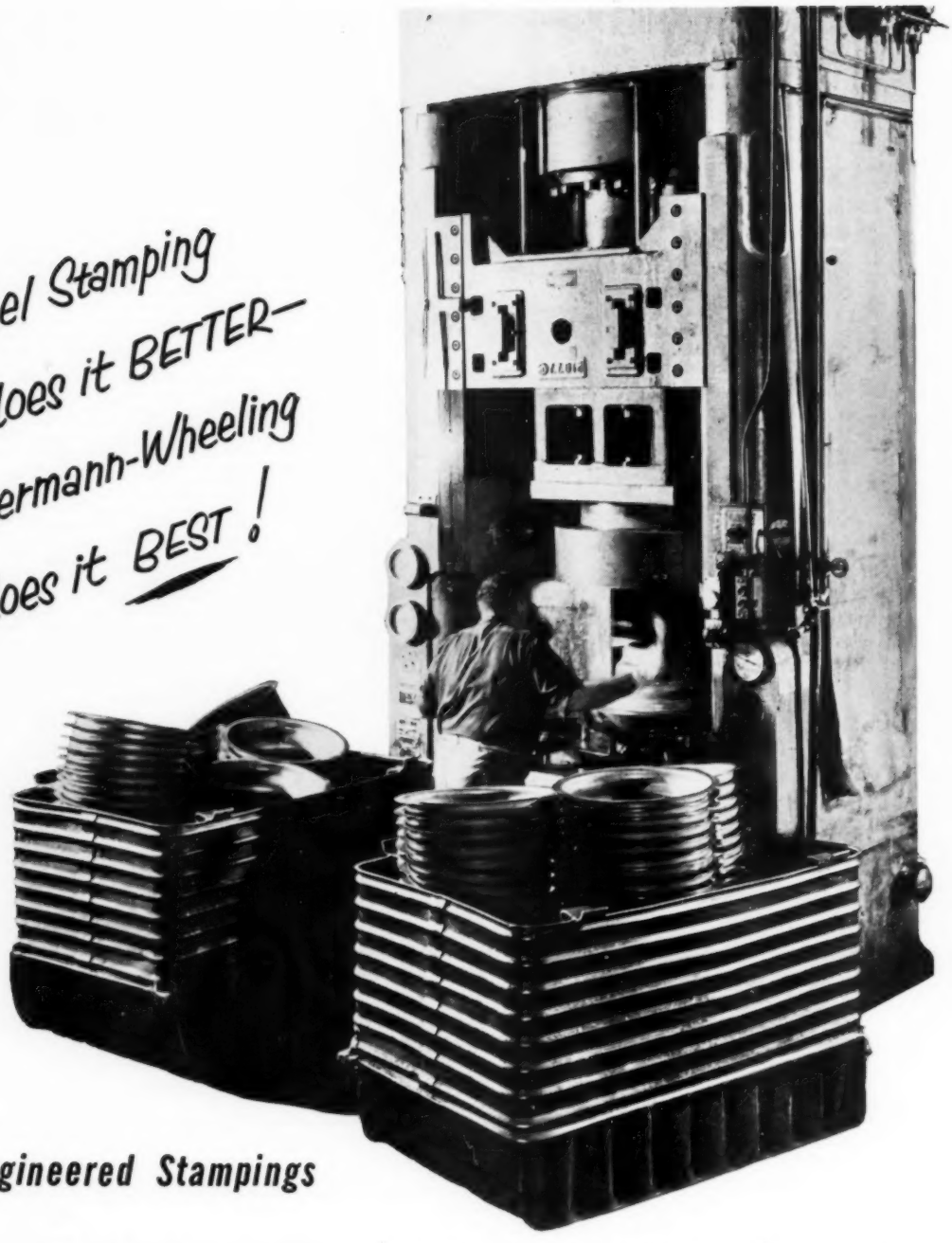
Distinctive Hardware **all from 1 source**

REFRIGERATOR HARDWARE
CABINET HARDWARE
STOVE HARDWARE
FURNITURE TRIM

CASTERS **BOLTS** **HANDLES**
KNOBS **SCREWS** **HINGES**

NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS

Steel Stamping does it BETTER— Ackermann-Wheeling does it BEST!



Engineered Stampings

Hard-pressed manufacturers know that when it is necessary to get production out *fast*... to solve difficult production problems... call Ackermann-Wheeling!

Ackermann-Wheeling means the finest in steel stampings... stampings that give products a definite competitive edge... stampings that often cut costs, allow maximum interchangeability, save machining and drilling operations and improve product appearance.

Here you'll find every production facility: deep drawing, shearing, spot welding, arc welding, brazing, pressing, degreasing, painting. All this plus Ackermann-Wheeling vast background of experience.

Got a production stamping problem? Let Ackermann-Wheeling solve it, tool it, mass produce it, assemble it! For full details on our services, write, wire or call!

ACKERMANN MANUFACTURING COMPANY

WHEELING · WEST VIRGINIA

ACKERMANN WHEELING

PHILCO'S ROASTMETER...

Another

KS

Customer Cooperative

ACHIEVEMENT

Philco's new Roastmeter electric range, an outstanding advance in automatic cooking, is another achievement of K-S Research in cooperation with the engineering staff of its customer.

Philco had been working on the device which would keep the cook continuously informed of the progress of the roasting process without having to open the oven door or stoop down to peer into a hot oven.

The problem involved the design of a suitable sensing element or probe for the meat and the electrical transmission of actual inside meat temperature to an indicator on the range control panel. It was in resolving this problem that K-S helped Philco in the final design of the Roastmeter.

The materials selected for the probe assembly provide for a maximum operating temperature of 500° F.

The transmission and indicating elements compensate automatically for fluctuations in input line voltage and for ambient temperature variations up to 200° F.

When you standardize on K-S indicating and control equipment, you increase the sales appeal of your product and you build customer good will. K-S engineers are always available for information and suggestions.

KING-SEELEY CORPORATION

KS

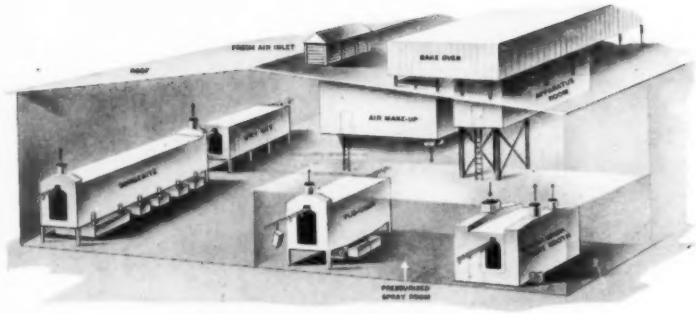
ANN ARBOR, MICHIGAN

7583

Balanced Units For Proper Performance

ROSS Complete

Paint Finishing System



Typical Layout of ROSS Paint Finishing System

WASHING • BONDERIZING • SPRAY BOOTHS
FLOW-COAT • DRYING • BAKING • CONVEYING

Leading manufacturers are installing these complete ROSS Systems to secure perfect coordination of all components with each unit carefully balanced for proper performance. Today's need is for uniformity of finish. With all major units designed, built and installed by ROSS, uniformity with the required production speed is assured.

For details on these and the many other ROSS Systems for more efficient production, send for our Bulletin S-3

J. O. ROSS ENGINEERING CORPORATION

***Main Office:* 444 MADISON AVE., NEW YORK 22, N. Y.**

Atlanta • Boston • Chicago • Detroit • Los Angeles • Seattle

ROSS ENGINEERING OF CANADA, LIMITED, MONTREAL, CANADA
CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

MEETINGS

AHLMA NAT'L. CONFERENCE

American Home Laundry Manufacturers' Association, 9th National Home Laundry Conference, Sheraton-Palace Hotel, San Francisco, November 2-3.

AUTOMATIC MERCHANDISING ASSN.

National Automatic Merchandising Association, trade show, Conrad Hilton Hotel, Chicago, November 6-9.

NEMA ANNUAL MEETING

National Electrical Manufacturers Association, 29th Annual Meeting, Traymore Hotel, Atlantic City, November 14-18.

HOME FURNISHINGS MARKET

The International Home Furnishings Market, Merchandise Mart, Chicago, January 9-20.

MECHANICAL ENGINEERING SHOW

Power and Mechanical Engineering Show, Chicago, November 14-18.

AIR-CONDITIONING SHOW

Ninth exposition of the air conditioning and refrigeration industry, Auditorium, Atlantic City, N. J., November 28-December 1.

PACKAGING INST. FORUM

Packaging Institute, 17th Annual Forum, Hotel Statler, New York City, October 31-November 2.

TIME AND MOTION STUDY

Industrial Management Society, 19th Annual Time and Motion Study and Management Clinic, Sherman Hotel, Chicago, November 9-11.

ENAMELERS CLUBS MEETINGS

Eastern Enamelers Club, Hotel Sylvania, Philadelphia, November 5.

Central District Enamelers Club, Hotel Manager, Cleveland, November 11.

Midwest Enamelers Club, La Salle Hotel, Chicago, December 3.

The answer to a tough finishing problem on JAMESWAY *incubators:*

James Mfg. Co., Ft. Atkinson, Wis., Los Angeles, Calif., Elmira, New York

Guardsman®
CHEMGARD and GLOGARD

Commercial hatchery incubators stand idle much of the year in unheated rooms that are often damp. These conditions create a serious corrosion problem unless units are properly finished. The James Manufacturing Company ended its search for the right finish with this 2-coat baking system:

CHEMGARD PRIMER	
TYPE	Epon
COLOR	Gray
APPLICATION	Spray (reduce 5 parts primer with 1 part special reducer)
BAKE	20 min. at 375°
HIDING	Fair, not solid
GLOSS	80
FLOWING	Excellent
ADHESION	Excellent
FLEXIBILITY	Excellent
TOUGHNESS	Excellent
HUMIDITY RESISTANCE	Excellent
DETERGENT RESISTANCE	Excellent

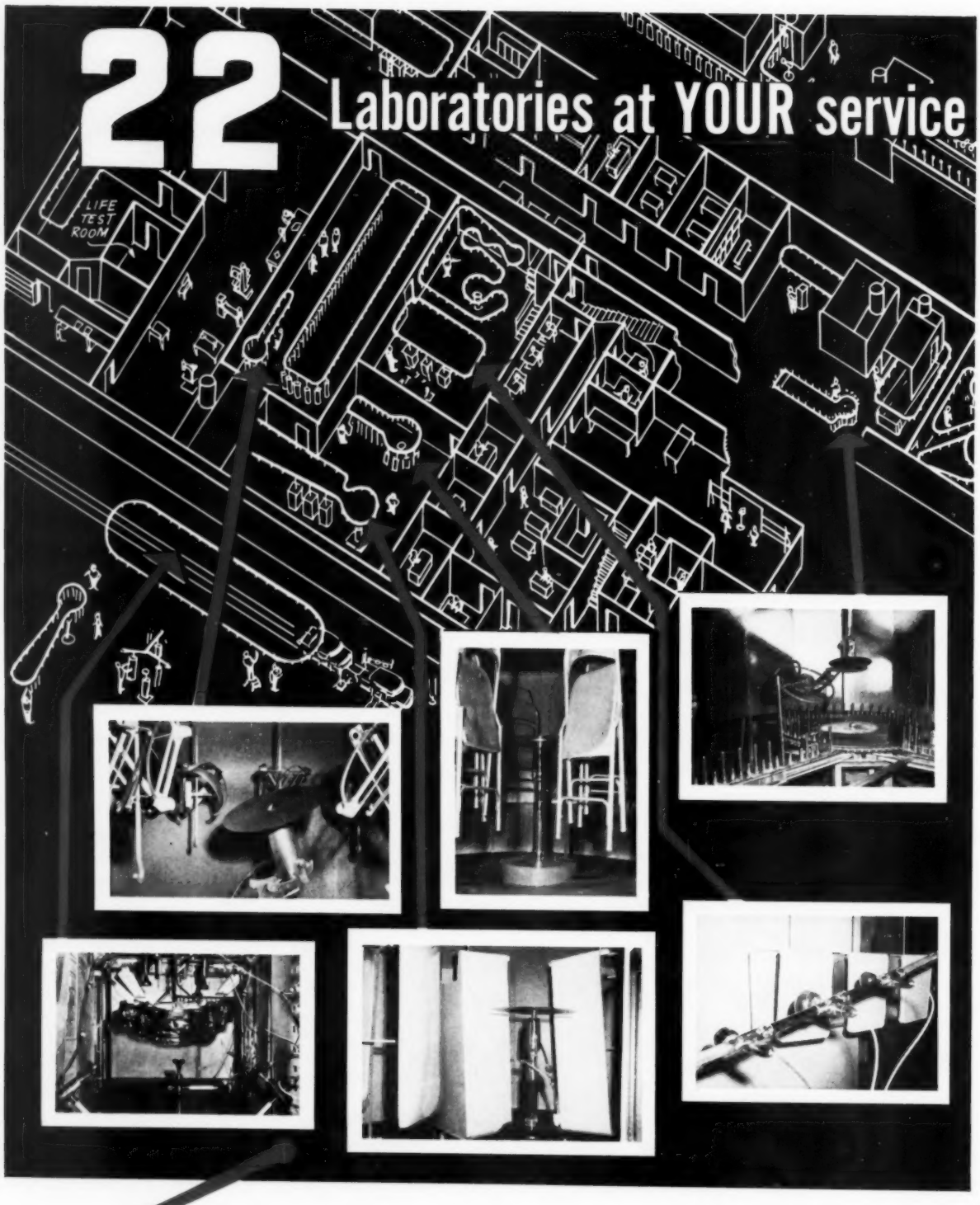
GLOGARD ENAMEL	
TYPE	Alkyd-amino resin
COLOR	White
APPLICATION	Spray (reduce 5 parts enamel with 1 part SC #2 or Xylol)
BAKE	30 min. at 300° or 20 min. at 325°
HIDING	Solid, 1 coat over primer
GLOSS	85
FLOWING	Good
ADHESION	Good
FLEXIBILITY	Good
HARDNESS	HB pencil
HUMIDITY RESISTANCE	Good
DETERGENT RESISTANCE	Good
COLOR RETENTION	Good

®

GRAND RAPIDS VARNISH CORPORATION

GRAND RAPIDS, MICHIGAN

Makers of the Famous Guardsman® Finish and Guardsman® Cleaning Polish



YOUR JOB, LIKE THESE SHOWN ABOVE, WILL BE TEST PROVEN

under simulated production conditions to determine cost-saving benefits and other advantages. Ransburg also maintains other test facilities in Los Angeles, London, England; Bad Hersfeld, Germany; Paris, France and Sydney, Australia.

to prove the painting of YOUR products with

RANSBURG

Electrostatic Painting Processes

Let us make laboratory tests and prove the advantages and cost-saving benefits of painting YOUR products AUTOMATICALLY with one of the Ransburg Electro-Spray Processes.

GET THE FACTS . . . IT COSTS YOU NOTHING!

STEP BY STEP—HERE'S WHAT YOU GET . . .

- Survey of your plant by Ransburg's experienced field engineers, including savings estimate.
- Lab painting demonstration of your products, using equipment closely simulating your own production conditions.
- Accurate measurements of paint film thickness.
- Engineering report of detailed tests to determine paint and labor savings.
- Coated samples of your job, lab production photos, and even movies if desired.
- Detailed drawings of equipment and workholder.

All of the above without obligation to you. And, before equipment is installed you receive detailed, pre-installation instructions. Too, a well-qualified, experienced engineer supervises installation and trains your operator on the job. Ransburg offers continuing laboratory and field service to help you with any of your finishing operations.

Ransburg

ELECTRO-COATING CORP.
Indianapolis 7, Indiana

● **First,** Ransburg sales engineers will make a survey in your plant to check the possibilities of using Electrostatic Spray Painting on your products. Next, you will send samples of your unpainted products—with paint—to the Ransburg laboratories in Indianapolis.

Here, the technical staff takes over. The Ransburg Engineering staff—which includes PH.D's and Masters in Physics, Science, Electrical, Mechanical and Chemical Engineering—makes a complete study of your job. Not only do they have the necessary academic training, but they have the "know how" gained from years of actual experience in the field. Ransburg, you know, was the pioneer in Electrostatic Spray Painting 15 years ago. Engineers and well-qualified technicians have at their disposal every facility for conducting complete tests, simulating your own production conditions. They'll decide which type conveyor is best suited for your job. (There's a conveyorized lab set-up—22 in all—to handle products ranging in size from automobile bodies and chassis to small components, such as window hardware.) They'll design workholders, if necessary, and determine exactly how your job can be run to your best advantage. Details, such as fixture spacing, will be worked out too.

After preliminary studies and tests, you are invited to Indianapolis to see your job run in the lab. If you wish, photos and even movies of your test run can be made and furnished for your own production people to study. You see first-hand what Ransburg Electrostatic Spray Painting can do for you in your own plant.

YOU GET PAINT AND LABOR SAVINGS

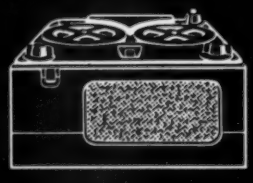
Paint usage is accurately measured during the demonstration. The Ransburg No. 2 Process will provide savings up to five times the paint mileage of hand spray. And, one unit can do the work of many hand sprayers. You will see the improved, uniform quality of the work . . . you'll know what kind of increased production to expect, and you can recognize labor savings. ALL OF THIS WITHOUT OBLIGATION.

Ransburg service doesn't end there. After the equipment is installed in your plant—with our supervisory help—we will train your operator and continue to work with your finishing department. Our technically-trained field service engineers are always available to assist with any of your finishing problems.

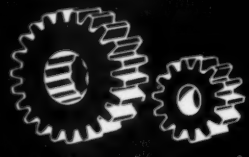
Briefly, that's our story. Now it's your move. Call or write. Dept. F.

PREVENT *Rust* *with* MACCO BLUCOAT

the amazing between-operation rust proofing solution



RECORDER precision parts are being given the Macco Blucoat Rust Preventive treatment by one of the nation's leading electronic manufacturers.



GEARS cut, ground and tempered are treated with Blucoat to prevent rust during storage, shipping and assembly.

CARBURETOR bodies and large engine castings being treated with Macco Blucoat to prevent rust after machining and during storage.

AUTO bodies of one of the world's largest body manufacturers are given the Blucoat treatment to prevent rust before painting.

***MACCO CASE HISTORY**

Blucoat is the almost unbelievably efficient and time-tested rust preventive used by leading metal processors and fabricating manufacturers the country over. They endorse its use as the only practical method of preventing rust between production operations and assembly —and during interplant transportation and storage.

5 REASONS FOR BLUCOAT'S NATIONAL ACCEPTANCE:

1. Blucoat is water soluble, making it economical, yet extremely efficient.
2. Blucoat is adaptable to an almost unlimited variety of applications and conditions.
3. Blucoat's powerful rust inhibitor works equally well on steel, cast iron, forgings or die castings.
4. Blucoat leaves no oily film—adheres better to metal—collects less dust, chips, etc.
5. Blucoat has withstood perfectly a salt spray test of more than 80 hours. Vastly superior to soluble oil, it contains no poisonous elements. No alcohol, making it exceptionally stable.

For the prevention of rust, Blucoat positively has no equal. Whether the product be the finest of automobile bodies or simply bale tie-wires, Blucoat's versatility makes it most indispensable for any metal processing plant.

Write today or call a Macco sales engineer. Phone Prescott 9-0800, Chicago.

*Actual Case History available on request.

MACCO PRODUCTS COMPANY

9210 SO. SANGAMON STREET • CHICAGO 20, ILLINOIS

finish SUGGESTION BOX

Resharpening large dies

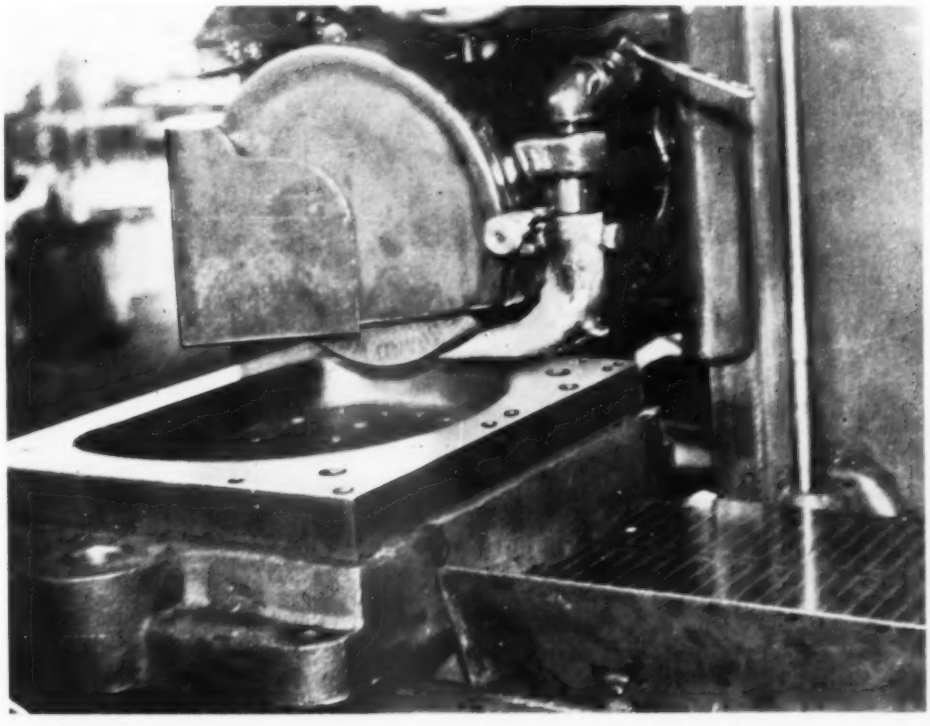
WHEREVER any appreciable amount of sheet metal is formed, blanked or fabricated, the problem of die maintenance is at hand. Generally there is a certain number of dies of quite large size to be maintained. In many instances the best method of resharpening is to remove the required amount of stock from the surface of the die. Such work has been lightened in some plants during recent years by using a high-powered, high-precision surface grinder of the type incorporating a reciprocating table, carrying a magnetic chuck by means of which the die is held in position for accurate grinding.

Units may be obtained with short reciprocating tables, so they can be used to advantage in plants where most of the work consists of die sharpening, and where a long table is therefore not required. By using a machine with a shorter work table much less floor space need be allocated to this kind of work.

In any plant where there is a large number of large-sized dies to maintain, it definitely pays to have a surface grinder of this type with a sufficiently wide table to accommodate the full width of the largest die. However, where the number of large dies is very small in relationship to those of smaller area, it is possible to use a machine with a narrower work table.

Here, a hardened steel die, 20 by 24 inches, is seen in process of resharpening, 1/32" being removed for the purpose. Only 20 minutes is required for resharpening. Three-quarters of the width is ground on the first setting, after which the die is reversed on the magnetic chuck widthwise, and the remainder of the surface is ground.

There are, of course, many different types of tool and die steels, and few of them are alike in their grinding characteristics. Therefore, when grinding any specific type or analysis of steel, it is always a good idea to obtain recommendations from abrasive wheel manufacturers, who have had experience with different wheels under practically all conditions. In various cases, using over-size wheels, it is found feasible to recondition dies without removing the leader pins from die sets. Where this can consistently be done, it offers both a time and accuracy advantage.



Source for more information on this resharpening method may be obtained by writing to *finish*.

View of hardened steel die in process of reconditioning on modern high-powered, high-accuracy surface grinder with narrow work table. Only 20 minutes is required for removal of 1/32" to resharpen this die.

ONLY Tuttle of Adrian

CAN GIVE YOU THESE FEATURES!

THE CONSUMER DESERVES THE BEST...

SADDLE LOOP HEATING ELEMENTS

Ask the manufacturer who uses them!

- ★ STEATITE INSULATORS for high thermal shock.
- ★ EASE OF REPLACEMENT on ceramics, exclusive in Tuttle Units.
- ★ "V"—FORMED STEEL gives extra rigid construction.
- ★ CERAMICS (if cracked) cannot drop out of hanger.
- ★ VERSATILE to fit all applications.

- ★ BRITE BASIC WIRE insulated hanger.
- ★ HEAVY NICKEL PLATE for corrosion resistance in all Saddle Loop elements.

H. W. Tuttle & Co.

ADRIAN, MICHIGAN

FOR QUALITY

Manufactured and distributed in Canada by CRONAME (Canada) Ltd. Waterloo, Quebec

PARTS *like these*

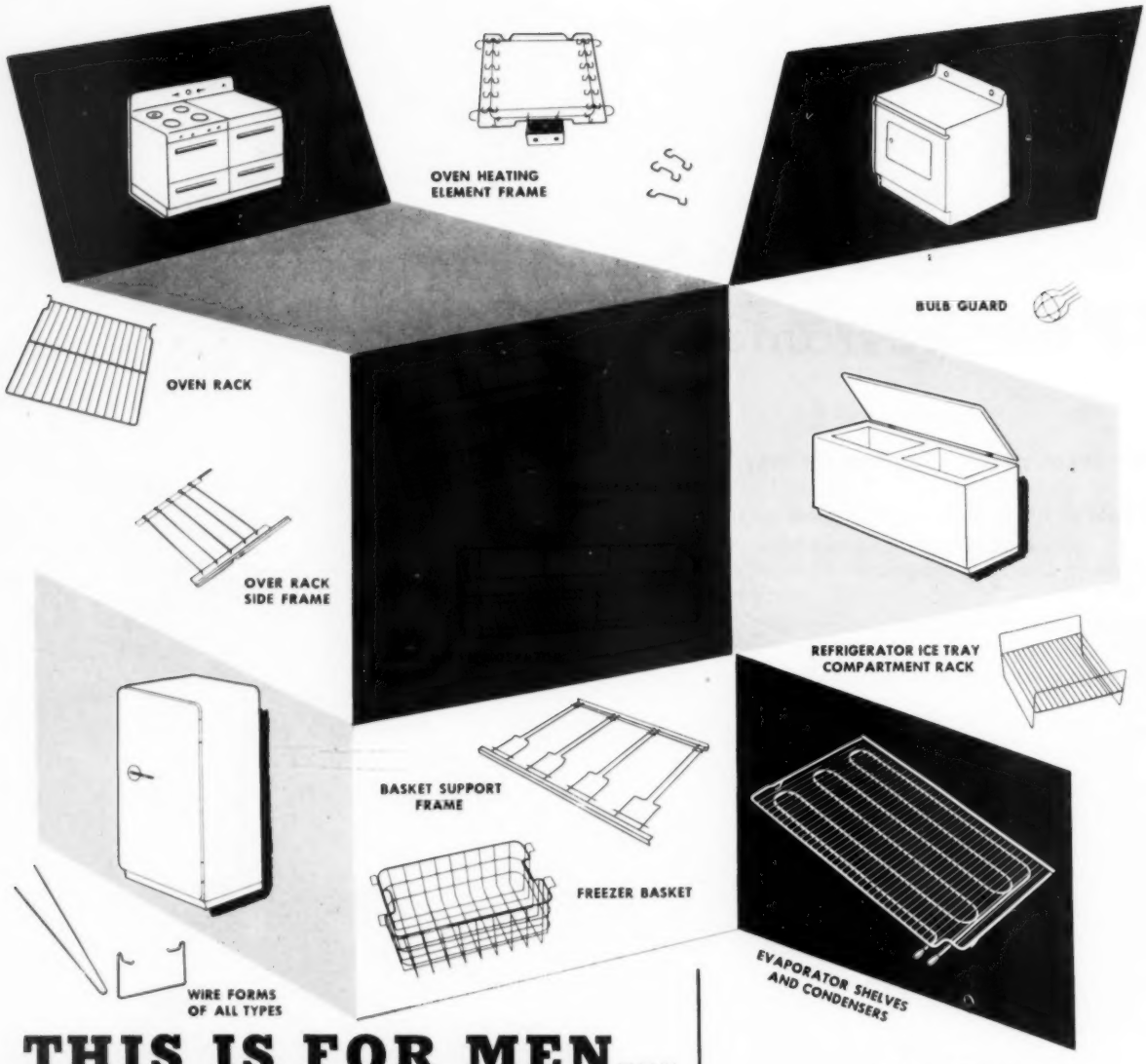
MEAN SAVINGS and SERVICE to our customers

Whatever your parts problem may be — whether it's a difficult stamping or a deep draw — Danielson equipment and "Know-how" is ready to help you — give you complete service *and* save you money!

1. A difficult vari-angled stamping. Part of Aircraft Gas Tank.
2. Aluminum Drip Pan for Vending Machine. Made in 1 draw.
3. Aluminum Housing made in 1 draw.
4. Steel Housing made in 2 draws.
5. Aluminum part made in 3 draws.

Write - phone - or wire today . . .

V. W. DANIELSON
MANUFACTURING COMPANY
3360 W. HOPKINS ST. • MILWAUKEE 16, WISCONSIN • Phone CUSTER 3-3800



THIS IS FOR MEN...

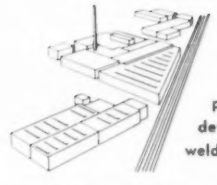
...Who are interested in the design, engineering and construction of modern appliances

Your product—your appliance *needs* wire. For modern wire is the preferred material because of its styling versatility, its strength, its lasting beauty and sound dependability. Wire—welded in the desired shape and size, plated in the finish desired, is basically essential to the appeal, the sale and the continuous satisfaction of your appliance.

Why not improve your appliance and eliminate production problems by selecting the one manufacturer who has specialized in producing quality welded wire products for half a century. Specify Union Steel...the *experienced* source that guarantees higher quality—plus on time delivery.

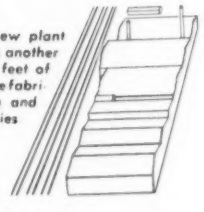
Need help? Union Steel's engineers will gladly assist you in planning and producing a welded wire part or assembly that will make your product more efficient.

Why not start by phoning Union Steel today?



385,000 square feet of modern plant facilities devoted to contract welded wire fabrication

USP EXPANDS AGAIN... TO SERVE YOU BETTER *



* *Union Steel's new plant which provides another 84,000 square feet of specialized wire fabricating, plating and shipping facilities*

UNION STEEL PRODUCTS CO. ALBION, MICHIGAN

WIRE PRODUCTS DIVISION

THE finish spotlight

Kelvinator 1956 two-cycle automatic washer features top loading and a new flexible "Do-All dial" control which may be moved in either direction to skip, repeat, lengthen or shorten any phase of either the regular cycle, for normal loads, or the fully-automatic second cycle for fine fabrics.

Major appliance division of NEMA plans for a big '56

THE Annual Meeting of the Major Appliance Division of NEMA (The National Electrical Manufacturers Association) was held September 26, 27 and 28, at the Ambassador East Hotel, Chicago.

Representatives of all NEMA Major Appliance Sections were present to discuss among other subjects their Sections' promotional plans for 1956.

The members present expressed the feeling that 1956 will be another good year for major appliance sales. Optimism for '56 is based upon many factors. Here are a few:

Marriages are prominent among such factors — a fairly steady million and a half a year. Conservative estimates say that new demand resulting from a marriage totals about $13,600 per couple — and out of that amount comes an average of $2,500 to equip the new household with furniture and appliances.

The *population* is constantly increasing, adding every year a number of eventual new customers equal to the population of Philadelphia.

In the 10 years since World War II ended, *37.4 million babies* have been born to American families, and authorities say these births mean 4 million potential customers a year.

Along with this population increase comes an *increase in living standards.* The rate of improvement, measured by the goods and services each person gets, has been about 1 per cent a year.

The number of *employed women,* too, has been going up. The total jumped 40% in 10 years — from 1 million in 1940 to nearly 16 million by 1950, according to census figures.

Range promotion

This year's electric range campaign to the architectural and building field consists of double-page spreads. Each ad includes a chart which dramatizes the success of the electric range, pointing up the fact that there are over three times as many electric ranges in use today than there were 9 years ago.

For 1956 the plan is to continue this effort in two-color, double-page space, with even greater emphasis on the electric range as a selling tool for builders.

For 1956 recommendation is being made that two color range advertising again be used to the home economics field. Over 20,000 Range Teaching Kits have already been distributed to coupon respondents. Recommendations are also being made for a campaign of two-color pages in publications reaching school management officials. Each advertisement will offer a revised edition of a Modern Home Economics Department floor plan booklet.

The school market is considered a most important one to the electric range industry. There are today more than 150,000 individual schools, of

New officers of NEMA Major Appliance Division

Chairman — R. J. Sargent, Manager, Major Appliances, Electric Appliance Division, Westinghouse Electric Corp., Mansfield, Ohio

Vice Chairman — A. H. Manwaring, Executive Vice President, Philadelphia Electrical & Mfg. Co., Philadelphia, Pennsylvania

Electric Range Section

Chairman — David C. Rainey, Manager — Special Products Div., The Tappan Stove Co., Mansfield, Ohio

Vice Chairman — E. P. Van Sciver, Product Manager, Electric Ranges, Philco Corp., Philadelphia, Pennsylvania

Electric Water Heater Section

Chairman — E. J. McFadden, General Manager, Home Equipment Division, Combustion Engineering, Inc., Chattanooga, Tennessee

Vice Chairman — D. J. Irvine, Manager, Sales Planning — Ranges and Water Heaters, Hotpoint Co., Chicago, Illinois

Household Refrigerator and Freezer Section

Chairman — F. C. Margolf, Manager, Sales Planning — Refrigeration, Hotpoint Co., Chicago, Illinois

Vice Chairman — F. E. Howell, Vice President in Charge of Sales and Distribution, Crosley & Bendix Home Appliance Divisions, Avco Mfg. Corp., Cincinnati, Ohio

Household Sink Units Section

Chairman — Ever J. Hammes, President, In-Sink-Erator Mfg. Co., Racine, Wisconsin

Vice Chairman — R. H. Hunt, Manager, Product Planning, Dishwashers, Hotpoint Co., Chicago, Illinois

Shockey, Schokey Asso.

Poteat, G-E; McFadden, Combustion Eng.; Lenz, Ralph H. Jones Co.

Jeffrey, Kelvinator; Gingles, NEMA

which approximately 25,000 are high schools.

Another trade advertising campaign proposed for continuation in 1956 is coordinated with the Edison Electric Institute's campaign. All programs will use the industry coordinated theme "Be Modern, Live Electrically".

Publication advertising and sound slide film for water heaters

The discussions of the Electric Water Heater Section included:

Proposal that its campaigns to builders in publications reaching that group continue in 1956.

In a campaign to Merchandising Plumbers in trade publications for 1956 it is proposed to use an easy-to-read sales story to the plumber — which he, in turn, can use to sell the efficiency fo Electric Water Heating to his customers.

Plans are being discussed for further distribution of a water heater sound-slide film, HOT WATER SAVES LABOR, in the rural areas of the nation. It has already been widely distributed to such agencies as REA Co-ops and to libraries of Extension Agricultural Engineers as approved by the U. S. Department of Agriculture.

Farm and home freezers

A continuation of the campaign in publications to home economics teachers featuring in each advertisement a way of obtaining the Home Freezing Teaching Kit is planned. To date over 35,000 of these kits have been distributed nationwide.

The proposal is that a publication campaign to the school management field be continued in '56. It will stress the need for freezer instruction in the schools.

Dishwashers and disposers

The Household Sink Units Section proposes to continue wide distribution and use of its publication "The Disposer Boy" and nationwide and local area automatic dishwasher promotions with suitable newspaper supplement material and other sales aids built around the "Ohio Dishwasher Study".

The Discarded Refrigerator and Freezer Safety Campaign, sponsored by the Household Refrigerator and Farm and Home Freezer Sections of NEMA, in cooperation with the National Safety Council, is now in its second year. Its purpose is to eliminate the needless deaths of little children. A new and vital force has been added — the cooperation of the Congress of Parents and Teachers—better known as the PTA. Posters and data sheets are being distributed throughout the network of state and local safety chairmen aimed at over 38,000 PTA organizations. The drive has the endorsement and close working cooperation of the National Safety Council, Boy Scouts, Girl Scouts, 4-H Clubs, light and power companies and NEMA member field organizations.

In a brief talk before the NEMA meeting Wayne Hughes of National Safety Council said that the educational campaign concerning abandoned refrigerators, freezers and *other air tight boxes* is not a one or two year campaign but one that must be waged on a continuous basis. "We always have a new generation coming on", he said.

Mr. Hughes pointed to the fact that percentage of fatalities from discarded "boxes" is extremely small compared with other casualties. The over-emphasis placed on individual cases by news stories tends to enlarge upon the hazard.

The speaker was very complimentary to NEMA for its educational efforts and complete cooperation with the Council.

In the prevention campaign newspapers have cooperated with many thousand lines of publicity, as have magazines and radio stations. A 20-second sound strip film "Sammy Safety" has been made available to 400 television stations by the National Safety Council. A special folder addressed to electric light and power companies has been distributed to the extent of 5,000 copies. There is also cooperation on the part of NEMA Section members, their distributors and dealers.

Factor "X" in appliance sales

Your *finish* editor attended a NEMA luncheon at the Ambassador-East on September 27 and heard an interesting discussion by Dr. Ernest

to Page 50 →

Hughes, National Safety Council; Dr. Dichter, Institute of Motovational Research; Manwaring, Philadelphia Electrical & Mfg. Co.; and Sargent, Westinghouse.

NEMA enua, Ebco; and Beatty, Westinghouse.

Benson, NEMA; Hohmann, Woman's Home Companion; and Gibson, Norge.

Hastings, Am. Kitchens.

ALKALI gray ground coa

FOR THE HOME LAUNDRY INDUSTRY

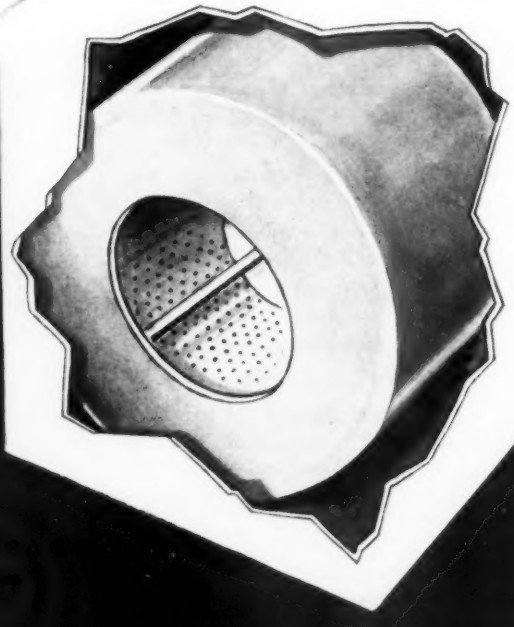
is here...NOW!

Alkali gray ground coat is another typical example of the pace-setting developments that spring from Chicago Vit research. With the advent of detergents for home laundry use a few years ago certain new requirements and problems in coatings arose. These were met and solved by Chicago Vit. Then along came a need for a gray ground coat with high alkali resistance. Chicago Vit research solved this problem too, and today alkali ground coat is not just a promise for the future but a reality that's here . . . NOW! The point is that whatever your end use problem may be you can bring it to Chicago Vit with confidence, knowing you'll get the right answer quickly.

IF YOU NEED ALKALI RESISTANCE WE'VE GOT THE FRITS YOU NEED!

• GROUND COATS • COVER COATS

See Your Chicago Vit Representative or Contact
Plant Direct For More Details



Mrs. America may never know the reason, but...

She Will Notice the Difference!

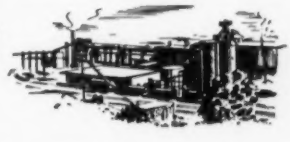
A gleaming porcelain enamel refrigerator, range, washer or sink adding functional beauty to the most modern kitchen . . . a sparkling bathtub and wash basin . . . all these get the nod of approval from your most critical judge—Mrs. America. Yes, she may never know that a small quantity of Foote lithium hydroxide is the reason, but she will notice the difference . . . at first in eye appeal that closes the sale . . . and later in better wear resistance that proves your point on quality.

Your best finish deserves the ingredient that makes the difference . . . Foote lithium hydroxide.

Now is the time to cast your plans in terms of an assured supply of Foote lithium. Write today for information about the supply and advantages of unique lithium compounds for your ceramic products.

LITHIUM HYDROXIDE
FOR INDUSTRY

Kings Mountain, N.C. . . . where Foote is mining large deposits of spodumene.



Sunbright, Va. . . . the world's largest lithium chemical plant.

FOOTE MINERAL COMPANY
412 Eighteen West Chelten Building, Philadelphia 44, Pa.
RESEARCH LABORATORIES: Berwyn, Pa. • PLANTS: Exton, Pa.; Kings Mountain, N.C.; Sunbright, Va.

....before Northwest developed Acid Solvent Emulsion Cleaner #1."

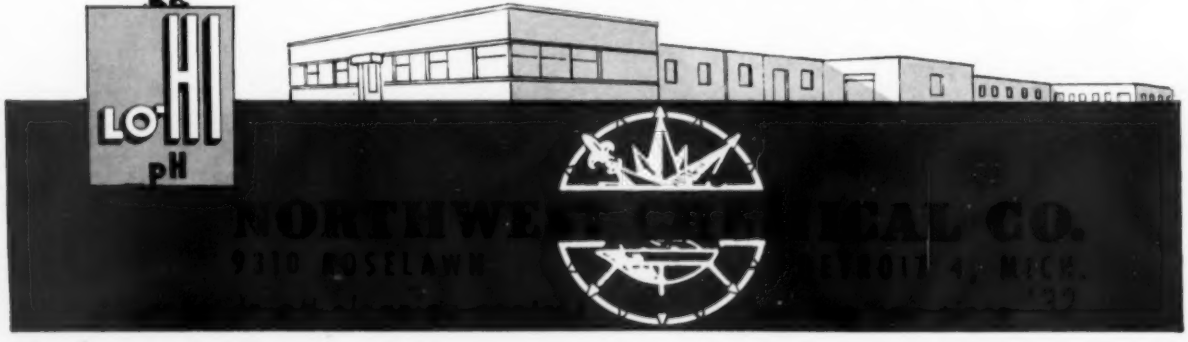
Northwest's Acid Solvent Emulsion Cleaner No. 1 completely and quickly removes soil from aluminum parts, preparing the surface for plating, painting, anodizing, zinc chromate priming or other finishes.

Acid Solvent Emulsion Cleaner No. 1 is fast cleaning, easily rinsed and controlled, readily-emulsified, and economical. It is non-toxic, non-corrosive to equipment, and non-injurious to the metal regardless of immersion time or bath temperature.

Northwest's production-tested chemicals and "Right the first Time" recommendations will save you money. A Northwest Cleaning Specialist with the complete story on Acid Solvent Emulsion Cleaner No. 1 or any of the other great Northwest Chemicals is as close as your phone or write for descriptive literature.

Remember **—YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER**

Got a Problem?
Let our Cleaning Specialists help you!



THERE IS NO SUBSTITUTE FOR

KNOW-HOW !

ONLY when you combine scientific knowledge with practical experience can you get genuine "KNOW-HOW."

Ing-Rich Frits are the result of this genuine Know-How—the result of exhaustive laboratory research by top flight ceramic engineers who have to prove their case, day in and day out under practical working conditions, in our own large job enameling plant.

Ing-Rich Ceramic Engineers, graduates also of the important school of practical experience, will, without obligation, come into your plant and prove to you that Ing-Rich Frits, under proper working conditions which they can and will help you set up, will give you more satisfactory enameling results.

THERE IS NO SUBSTITUTE
FOR "KNOW-HOW"

INGRAM-RICHARDSON, INC.

OFFICES, LABORATORY AND PLANT • FRANKFORT, INDIANA

IN October, 1953, *finish* featured the first bowls, plaques, ash trays and wall decorations ever to be made using vitreous enamels on sheet aluminum. The work shown was that of Edward Winter, leading Cleveland, Ohio, artist in enamels on metal.

A number of years earlier, *finish* recorded the work of this artist in enamels on steel and copper. Edward Winter has now pioneered the new field of fine art panels and bowls in light weight aluminum and colorful vitreous enamels.

For the large bowls and trays, the artist uses 16-gauge 61S aluminum and, for the panels, he uses a much thinner .025 aluminum. The work is fired at 1000°F. for a period of six minutes. Four firings were necessary to complete most of the designs. The aluminum is heat treated and given an acid bath prior to enameling.

Winter's 25 years of experience in enameling copper, steel and sheet silver has resulted in rapid advance for his work in enameled aluminum. He was a pioneer in enameled steel and copper murals in 1934 and, since that time, his work has been featured in more than 48 American and European museums. In referring to this recent work, artist Winter said, "The panels show the possibility of huge sheets of thin aluminum being used with colorful permanent designs for architecture. There

all pieces illustrated were shown in the Aluminum 1955 Exhibition, Royal Festival Hall, London, England, as . . .

Above: Edward Winter, enamel designer, holding a feather-weight decorative panel suitable for elevator doors, bar murals, lounge and stateroom decorations, etc. The .025 aluminum panel with enamel coating weighs only 3-1/2 pounds. Colors are grey-green, blue-grey, black, white and gold. The hairline craquelle gives the effect of spun glass.

Left: Firing small enameled pieces on a box-type furnace at 1000°F. for a period of six minutes. All panels and bowls receive from four to five separate firings at this temperature. The same temperature can be used for either .025 or 14-gauge material. The 61S aluminum is given a pre-heat before applying enamel colors. While large panels have been executed successfully by firing on burning pins, hanging tools are suggested as preferable.

is a big field in architecture for exterior and interior murals and a future for feather-weight decorations for steamships, trains, planes, etc. Then there are store fronts, furniture cabinet fronts, table tops, bar murals, and 101 other uses."

In describing the effects to be obtained, he said, "The experienced artist working with aluminum enamels can develop and produce unusual textural effects — similar to spun glass or frosted glass. Highly transparent as well as opaque or matt surfaces can be obtained.

"The dark transparent blue frits are the most luminous and show the metal surface underneath. Opaque colors are acquired with metallic oxides. Special frits containing 7 to 10 per cent cadmium oxide are used for brilliant reds and opaque yellows. A dense opaque white is the most difficult to get but 20 per cent titanium dioxide in the mill and a two-coat application will produce a good white."

The work represented by the photographs on these pages was shown at the Aluminum 1955 Exposition, Royal Festival Hall, London, on invitation of the Aluminum Development Association of Great Britain. The European tour for the art pieces included Wolverhampton, Birmingham, Rotterdam and Paris.

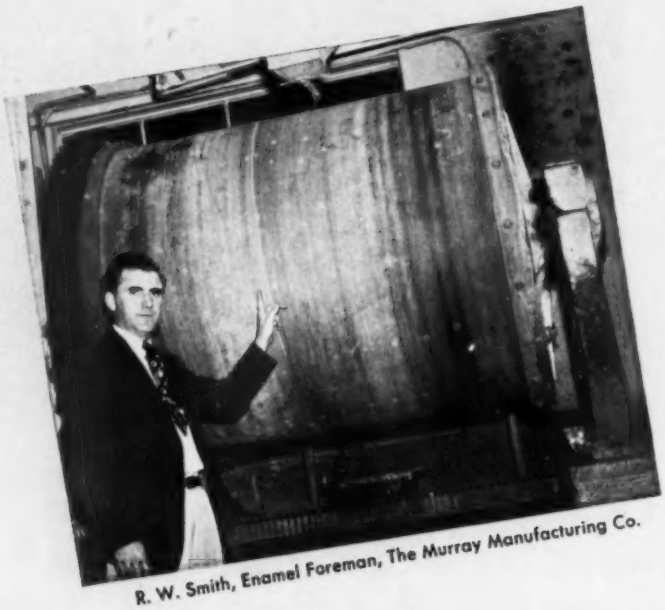
Enameled Aluminum enters the fine art field

Above: Artist Winter with Bernard C. Blynn, British Consul to Cleveland. The Consul viewed the art pieces before they left by Air Express for England, to be featured in a section, "Things to Come," at Royal Festival Hall in London.

Right: Bowls 18-22 inches in diameter made of 16-gauge aluminum illustrate texture and design obtained using vitreous enamels. The artist's 25 years of experience in steel, copper and silver enamels had led to rapid technical advancement in the art of enameling aluminum. Colors are lemon yellow, blue-grey, blue-green, black and 24-carat gold. The top bowl is lemon yellow with black and gold decoration. Similar decorations are suggested for flat circular discs of 12 to 14-gauge material for architectural treatment.

Coors high density grinding balls produce these results...

"GRINDING TIME CUT TO 4½ HOURS"



R. W. Smith, Enamel Foreman, The Murray Manufacturing Co.

"NEED FOR ADDITIONAL MILLS WAS ELIMINATED"

"MILLED ENAMEL COMES OFF COOLER"

"NO BALLS HAVE TO BE ADDED WITH EACH BATCH"

"NO BALLS ARE SCRAPPED FOR BEING OUT OF ROUND"

"LINING WEAR IS LESS"

"AFTER 2½ YEARS OF OPERATION WITH COORS BALLS, WE ARE CERTAINLY PLEASED"

The Murray Manufacturing Co. says:

"We began using Coors High Density Alumina Ceramic Grinding Balls at a time when we were considering additional mills to take care of our schedule.

"With the Coors High Density Grinding Balls, we were able to cut our grinding time from between 7 and 8 hours to 4½ hours on the 1,000 pound mills. We were able to meet our schedule without adding mill room equipment, and still have idle time on our mills. We had cut milling time 40%.

"Maintenance cost on mills went down, because we eliminated the extra grinding time. We did not have the excessive amount of unground frit. Milled enamel came off cooler, and we were able to obtain a more uniform set. No balls are added with each charge. Mills are now dumped once a year (we had to dump conventional charges every 35 grinds and scrap around 300 lbs. from being out of round, broken, etc.). We dump now only to inspect linings. No Coors Balls are scrapped as they wear even and are still in good shape.

"We do not have Coors High Density Linings in our mills at present, but with the conventional lining, wear is less than with other balls over a year of the same amount of slip milled.

"After 2½ years of operation with Coors High Density Balls, we are proud to express our opinion on a product which has done so much for us," R. W. Smith, Enamel Foreman, The Murray Manufacturing Co.

COORS PORCELAIN COMPANY

Golden, Colorado

National Sales Representatives . . .
LZP INDUSTRIAL CERAMICS CO.,
2500 West 7th Ave., Denver 4, Colo.

Write today for your copy of our new handbook on "Coors High Density Grinding Media and Mill Lining Brick of Alumina Ceramic."

WE'RE IN THOUSANDS OF KITCHENS EVERY DAY...

HOMMEL

A NAME THAT HAS BECOME A SYNONYM FOR *"Beautiful Utility"* IN THE CERAMIC INDUSTRY...

SEE OUR CATALOG IN Ceramic data book

Leading manufacturers of kitchen equipment and decorative accessories depend on HOMMEL for finest ceramic materials. Whether it's HOMMEL FRIT for gleaming white refrigerators (1) or HOMMEL GLAZES for lovely pottery (2) . . . whether it's acid-resisting HOMMEL COLORS for glassware (3) or HOMMEL TITE-WITE FRIT for lower production costs and greater strength on porcelain enamel surfaces that must "take it" (4) . . . HOMMEL means satisfaction! Yes, you'll find HOMMEL "know-how" even on beautiful, durable ceramic tile walls (5) and tile floors (6) Why not bring YOUR ceramic problems to HOMMEL . . . as so many other cost-conscious manufacturers do?

WRITE, WIRE or PHONE for further information TODAY!

Sales representatives throughout the world

THE **O. HOMMEL CO.** PITTSBURGH 30, PA.

POTTERY • STEEL AND CAST IRON FRIT
CERAMIC COLORS • CHEMICALS • SUPPLIES

Our Technical Staff and Samples are available to you without obligation. Let us help with your problems.

"The World's Most Complete Ceramic Supplier"

West Coast Warehouse, Laboratory and Office, 4747 E. 49th Street, Los Angeles, California

C. G. Frantz, president, Apex Electrical Manufacturing Co., Cleveland, and head of the Vacuum Cleaner Manufacturers' Association dressed to suit the mood of the Mexican costume party.

Vacuum cleaner manufacturers' n

HOUSEHOLD vacuum cleaners are selling at a rate which will send this year's total well above the 3,000,000-unit mark for the first time since 1950, and for the fourth time in the industry's history, announced C. G. Frantz, president of the Vacuum Cleaner Manufacturers' Association, at the organization's meeting in The Homestead, Hot Springs, Virginia, September 19-24.

The other years were 1947 and 1948, when part of the record sales volume was caused by a backlog of accumulated consumer demand resulting from wartime suspension of cleaner production by the Association members. Vacuum cleaners now in use exceed 30,000,000.

"It always is pleasant to be able to report good progress in the operation of an organization, whether it be one's own or such a group activity as that of this association," said Frantz, who is also president of the Apex Electrical Manufacturing Company, Cleveland. "The convincing evidence, of course, is that of improvement in terms of better results.

"For the first eight months of 1955, we record a unit sales total of 2,081,297 cleaners, compared with 1,701,800 units in the same period of 1954, an increase of 22.3%, or almost 400,000 units.

"In terms of retail value, includ-

Members and their wives dressed as Mexicans for the association's costume party.

rs' meeting

Walter Dietz, president, Electrolux Corporation, New York, and Mrs. Dietz.

Robert Wood, president, Birtman Electric Company, Chicago, and Mrs. Wood.

ing hand cleaners, the period amounts to $186,000,000 as against $166,000,000 in the eight months of 1954, or a $20,000,000 increase.

"If the same 1955 rate of increase in unit sales of standard-size cleaners continues through the remaining one-third of the year, we will record a year's unit total of 3,250,000 as against 2,658,000 cleaners sold in 1954, an increase of 592,000 units. Retail value, including hand models, would be $290,000,000 compared to $260,000,000, a nice big $30,000,000 advance.

"Each month's sales since August, 1954, have broken records which had stood for three to as many as seven years," reported Frantz. "Post-war sales, 1946 through August of this year, in fact, aggregate almost 29,000,000 standard-size cleaners, compared to 24,400,000 units in the entire earlier history of the industry, 1908 through 1942."

Factory sales of standard-size vacuum cleaners in August totalled 244,540 units, compared to 185,397 in August, 1954, Frantz added, an increase of 37.8%, and were 23% higher than 207,758 in July.

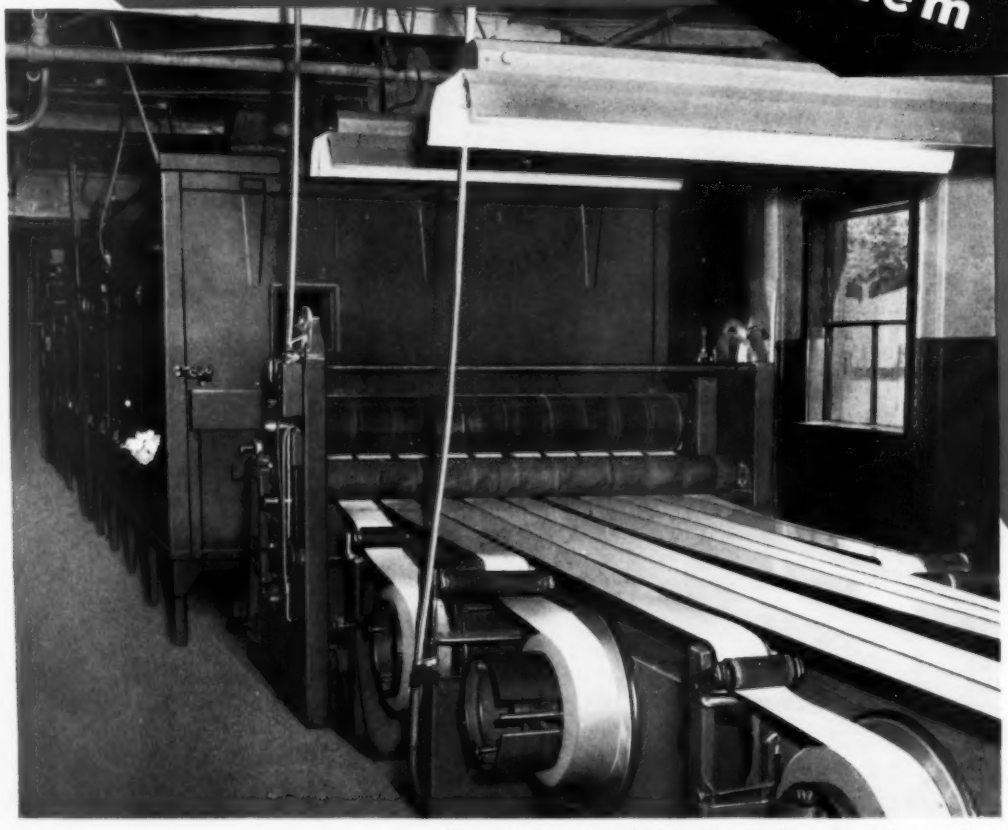
Looking to the future of the industry, Frantz commented that "the largest room in the world is the room for improvement. The household market offers plenty of opportunity for our industry. Residential 'starts' this year will aggregate 1,300,000, in each of which there should be a brand-new cleaner.

"Retirement of old vacuum cleaners from active use is low. All of us should stress the greatly superior effectiveness of today's cleaners, so that many homemakers will stop making further use of models which ought to have been discarded long ago because of their obsolescence and general actual unfitness for the many cleaning functions which they should perform."

Mrs. Joseph Dunn, James F. Roach, vice president, Electrolux Corp., and Joseph Dunn, manager, vacuum cleaner dept., Westinghouse Electric Corp., Springfield, Mass.

Finishing before Fabrication

with BURDETT "Radiant Heat" System



Shown is the exit end of Burdett "Radiant Heat" Oven with drive mechanism for the coating unit and recoilers in foreground.

One of the most important considerations in "Finishing before Fabricating" is a perfect bake—and that is where Burdett "Radiant Heat" has no superior. An excellent example is this continuous strip operation at the plant of Hastings Aluminum Products, Inc., which incorporates a multi-stage cleaning and phosphatizing operation, automatic spray painting and a two-zone Burdett "Radiant Heat" Oven. Produced is an extremely uniform finish which is more than equal to the following recoiling, uncoiling and fabricating operation. The first zone of the Burdett Oven is controlled to 350° F. and the second zone controlled from 450° F. to 460° F. Each zone is controlled seperately. Outstanding features of this oven are the short baking cycle, thoro and uniform bake, exceptionally close control, low cost of operation and essentially no maintenance.

Be Sure your equipment is Burdett —either "Radiant" or "Convection"

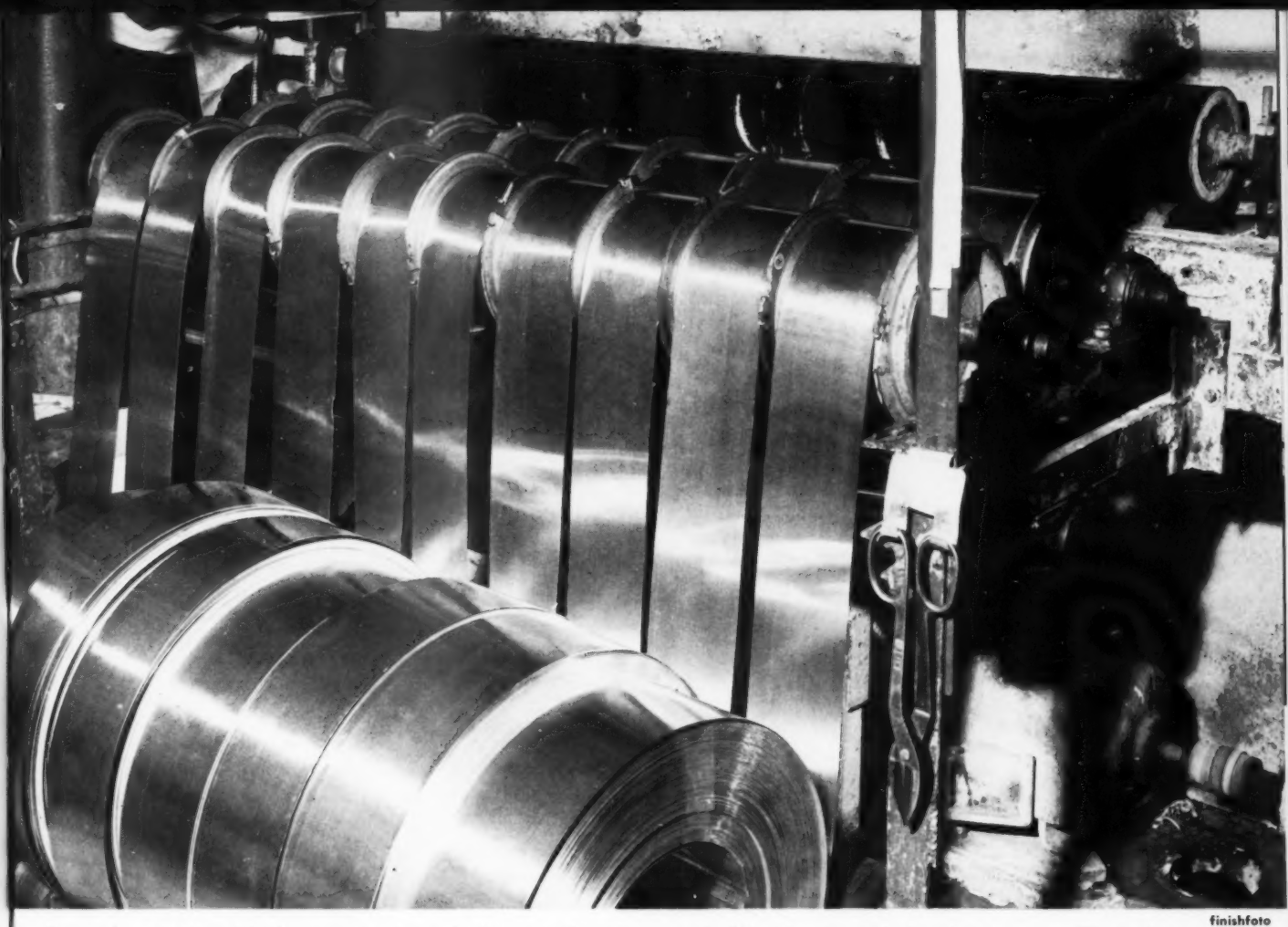
BURDETT
MANUFACTURING COMPANY

3401 West Madison Street, Chicago 24, Illinois

Detroit Philadelphia New York Cleveland Dallas

Manufacturers of
COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT SYSTEMS", OVENS, HEATERS, AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

Write for the Burdett story



finishfoto

Ten coils of 5¼" width aluminum stock are feeding into the entrance end of the cleaning and phosphatizing unit. The visible guides are variable so that different widths of stock, up to 48 inches, may be processed.

continuous cleaning and phosphatizing, infra-red drying and baking, continuous spraying, roller coating and offset printing are utilized in this compact plant for . . .

Finishing before fabrication

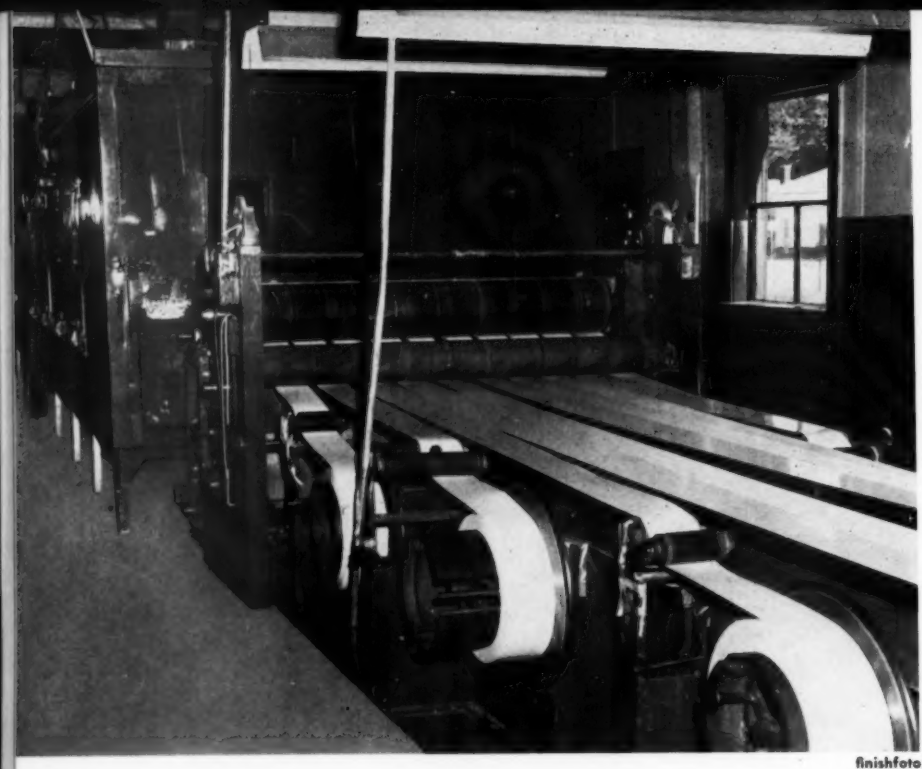
Exclusive feature finish

One of the most interesting plants that we have visited during recent months is that of Hastings Aluminum Products, Inc. (formerly Metal Tile Products, Inc.), of Hastings, Michigan. Here is a "small but mighty" plant, ingenuity, modern equipment and methods and close control of operations have been combined to turn out remarkably fine looking finished products with a minimum of plant space and man-hours. Much of the speed and efficiency in the plant operation may be credited to the fact that all products are fabricated from prefinished coil stock. Aluminum is the base metal and the finishes are especially formulated baking enamels which afford the properties required for the individual finished products.

The two principal products in current production are aluminum wall tile and aluminum awnings.

Completely automatic finishing equipment

The main paint line consists of a completely automatic finishing unit including cleaning, phosphatizing, spray painting, baking, cooling and recoiling. In the widths most commonly run, ten strips of coil stock can be fed simultaneously into the finishing system. However, the feed rolls are provided with removable guides so that any width coil stock



finishfoto

This photo shows the drive mechanism for the coating unit, the staggered location of the re-coilers and, in the background is the gas-fired, infra-red oven for finish baking.

up to 48 inches may be processed. When capacity is increased as a result of new plant space and equipment facilities now being provided, the company expects to be in position to furnish precoated stock for other manufacturers. All power for the complete finishing unit is on the exit end, with each coil being pulled individually through the entire system. A braking arrangement provides the right degree of tension on all coils.

Five-stage cleaning and phosphatizing

The first section in the automatic finishing line includes a five-stage cleaning and phosphatizing set-up with the following tanks:

1. Alkali cleaner
2. Water rinse
3. Phosphatizing
4. Water rinse (overflow)
5. Water rinse

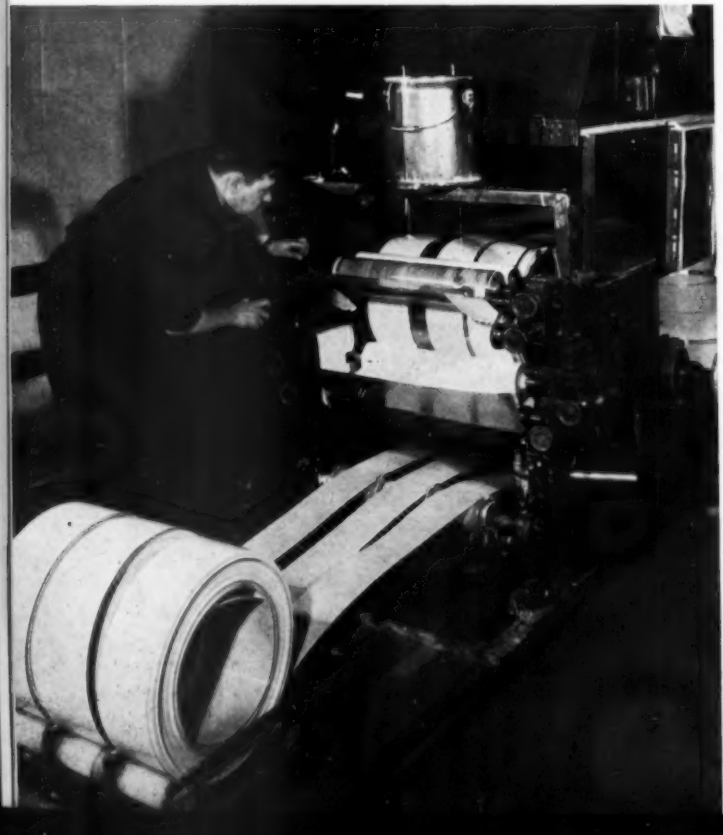
All tanks are individually enclosed or hooded and all solutions are applied by forced spray. Squeege rolls with spring pressure are located between tanks to hold back carry-over. Each tank has individual pumps and motors for forced spray application. Tanks are heated by 300,000 B.t.u. gas heater through an 8-inch diameter heater coil.

As the coil strips leave the cleaning and phosphatizing section, they enter an enclosed infra-red (lamp-type) dry off oven. There are 60 lamps in this unit with controls for varying the number in use. A 140°F. metal temperature is maintained in this 8-foot oven. As the cleaned and dried coil stock leaves the dry off oven, it enters a completely enclosed pressurized spray booth. The booth is provided with 15,000 cfm fan for air intake through dry type filters. The 2-gun reciprocating automatic spray equipment is supplied from a fire-proof paint mixing room adjoining the production line.

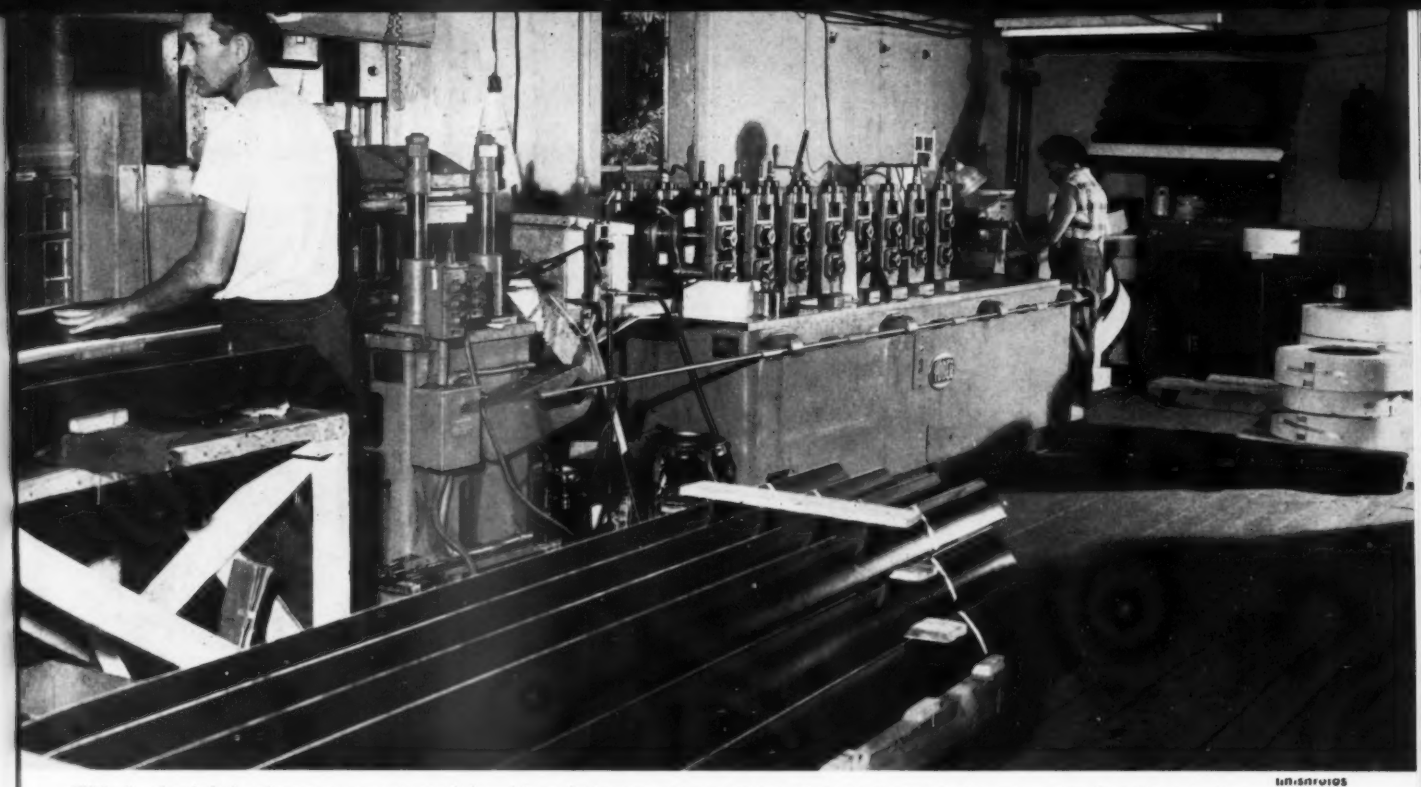
The paint is mixed in 50-gallon agitator pressure tanks in the paint room and then fed through tubing, paint filter, to a paint heater located at the booth.

There is no attempt to reclaim the finishes for as many as 30 colors may be applied in the same booth before the line is stopped for complete cleaning. A routine has been established so that complete clean out of the system from pressure tank to gun, cleaning of nozzles and clearing of paint particles in the booth can be accomplished in approximately one minute. These changeovers are made while the complete unit is in operation.

As the strips leave the spray booth, they pass through a 12-foot flow-out



This is one of two roller coating machines used for painting the reverse side of the coil stock which has been cleaned and painted earlier on the main paint line. The line shown here includes an elevated infra-red oven for baking and re-coiling equipment.



This is the fabricating equipment used for 14 and 16-foot awning slats. Notice method of nesting for handling in foreground.

enclosure, equipped with inspection windows, before the sprayed metal reaches the oven.

Infra-red baking

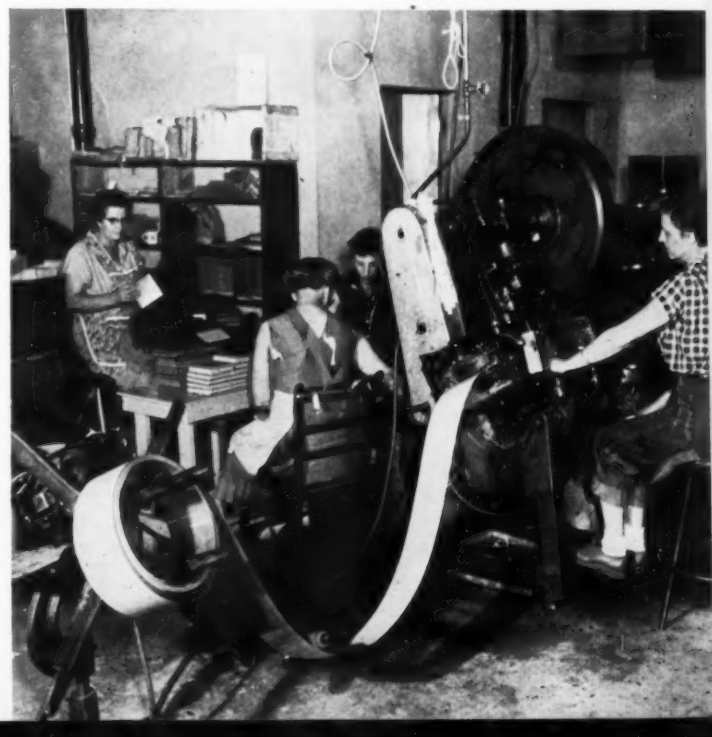
All ovens throughout the plant are infra-red. In the instance of the main paint line now being described, the oven is a 34-foot gas fired unit. Actually, it is two ovens in tandem with a first 15-foot section controlled to 350°F. air temperature and a second 19-foot section controlled to 450° to 460°F. air temperature. There are two separate batteries of burners for the two zones with controlling pyrometers for each.

Solvents are evaporated in the first 15-foot zone with the bake-out taking place in the second zone. The metal temperature at the exit end of the oven is 385°F. This is checked regularly by the finishing foreman through the use of a contact pyrometer.

As the coils leave the baking oven, they pass over a water cooled steel drum which is in contact with the under surface or unpainted surface of the strip. The coated metal then travels downward to a point between the floor and oven bottom where it forms a loop (a total of 68 feet) for the entire length of the oven for a period of cooling to near room temperature.

Following the cooling, the strips return to working level and proceed to the individual re-coilers. The individual re-coilers are placed at varying distances from the oven exit so that each can be unloaded without affecting the operation of the balance of the equipment.

As can be seen, the complete automatic line must have its equipment and material coordinated for proper control through a time-temperature cycle. For instance, if the line were to stop with coated metal in the oven, the metal temperature would immediately shoot up to 450°F. instead of the 385°F. standard. This difference is controlled through the time-temperature cycle of the oven. The



Coated aluminum coil stock feeds from the left into automatic feed of press for fabrication of tile. There is automatic air ejection from the press to a conveyor belt serving three inspectors.

finishfoto

Corner of laboratory shows paintline foreman checking glossometer. Hour glass tests are in center and drop tester at right.

speed varies from 6 to 20 feet per minute, depending on the gauge of the aluminum metal and the color of the finish being applied

Metal thickness varies from .019 to .064 with the coil stock used for tile normally .020. The width of coil stock for tile is 5¼ inches and for awning sections 5-1/16 inches.

Coil stock for awnings is processed exactly the same as that for tile except the heavier gauges (.040 and .025) are used and paints are selected for outside exposure. In addition to the awning "slats," there are awning supports produced with .064 stock and processed the same as the slats except that they are then rolled into U-shaped channels.

As the reader will have observed, the process described thus far has covered the coating of coil stock on one side only. From the main paint line, the painted coils go to one of three locations:

1. Stock used for tile and plain colors goes direct to the press room inasmuch as coating is on one side only.
2. Stock to be used for marbleized tile is transferred from the main paint line to an offset printing line.
3. Awning coils leave the main paint line and are transferred to one of two roller coating lines. One has space for three coils and the other has space for four widths.

The roller coating equipment is used to apply a flat white on the reverse side of awning stock. As the coil stock leaves the roller coater, it goes through a 28-foot lamp-type infra-red oven and is then re-coiled. At the offset printing line, coils feed through a set of braking rolls for tension to a marbleizing roll. (A complete unit includes a pick up roll of wood, an engraved metal roll and a rubber transfer roll.) This strip is held to the transfer roll by a metal tension roll.

From the offset printing, the metal travels to an overhead 12-foot lamp-type oven for fast marbleized baking. It is then pulled through a roller coating unit for the application of a clear top coat. This top coat is baked in a four section infra-red oven (7 feet per section) housing 16 1,000-watt lamps each. There is individual zone control.

Like in all other cases, as the coated metal leaves the oven, it is re-coiled and transferred to the fabricating department.

Fabricating the finished stock

The painted coils are stored according to color, type of finish, width and gauge as required for the different products manufactured.

Fabrication of 12-foot and 16-foot awning slats is accomplished on metal rolling equipment, as are the U-shaped awning supports.

Principal tile sizes are 4″x 4″, 5″ x 5″ and 10″ x 10″. The stock for the tile is automatically fed into presses where they are stamped at approximately 90 per minute. The tiles are air ejected from the press to continuous belt conveyors which carry them past inspection . Three inspectors are usually required for each press. Following this final inspection, the tiles go to wrapping and packaging benches.

Packaging varies with the size of the tile. For example, twenty-nine 5″ x 10″ tiles are nested together and wrapped as a unit and then corrugated board is placed between each of these wrapped units in the shipping container.

It has been found necessary in packaging awning slats to use waxed paper between each slat in packaging. The slats are then bundled 10 pieces to a bundle and secured with glass reinforced tape. The slats are packed 480 lineal feet to a carton and then steel strapped for shipping. On the cartons for the 12-foot slats, there are three horizontal and one vertical steel strap; for the 14-foot, four horizontal and one vertical; and for the 16-foot, five horizontal and one vertical.

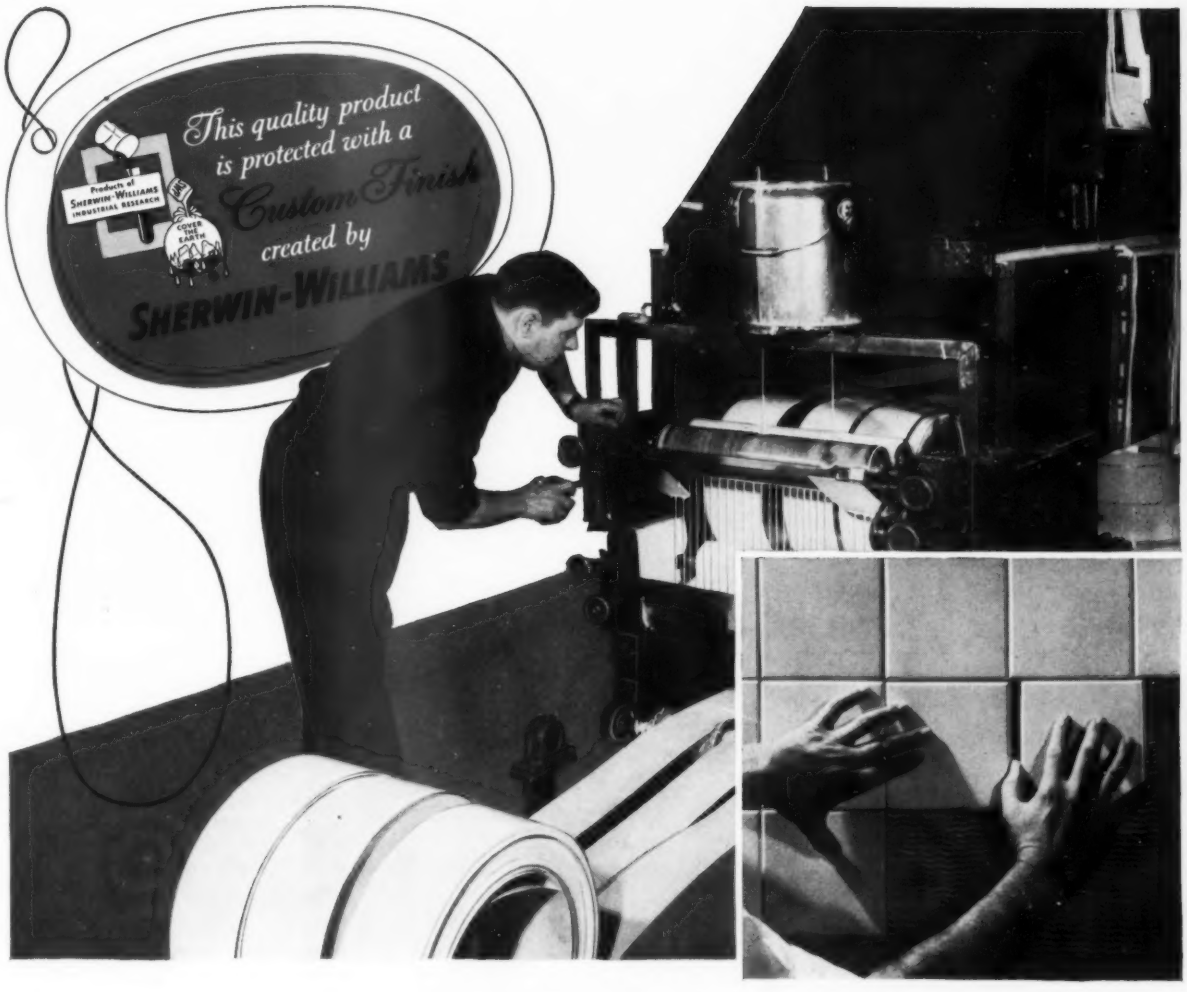
Laboratory control is a must

In continuous operating equipment of the type used at Hastings where metal preparation, paint application and baking are included in the same line, and particularly where a variation of metal gauges and types of coating materials is regularly used, proper process control is exceedingly important.

Included in the laboratory equipment are a weatherometer, an aerated water bath (in this bath, tap water is aerated through a pump and heated to 110°F), a Taber abraser, a Sward hardness rocker, a 60° glossometer, a microscope, analytical balances, laboratory bake ovens, 160-inch-lbs. ball-type impact tester, Pfund cryptometer, etc.

Standard tests include 500 hours

to Page 50 →



How to paint a bathroom wall
12 FEET A MINUTE!

What kind of finish can be put on aluminum wall tile that will withstand stamping and forming *after* painting . . . resist moisture, heat, chipping and marring . . . compare favorably with much heavier and costlier types of tile in beauty and durability?

Hastings Aluminum Products, Inc., Hastings, Mich., put these problems up to Sherwin-Williams technicians. Special formulations were developed which are rolled on aluminum strip continuously at the rate of 12 feet a minute, then baked, stamped and formed into gleaming, lustrous tile squares in more than 20 colors. Result: a product which has experienced a phenomenal growth in sales . . . required repeated plant expansion . . . promises to require more.

Sherwin-Williams experience in the field of prefinishing of metals is one of many specialized types of product finishing help available to manufacturers. Investigate—check your Sherwin-Williams Industrial Representative or write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio. (In Canada: 2875 Centre Street, Montreal.)

SHERWIN-WILLIAMS
Industrial Finishes

A purchase parts conveyor, on which individual items for each unit are stored on a sectional storage rack or in "traveling bins", first serves the subassembly stations and next the final assembly stations on the final assembly line.

Assembly operations for home laundry appliances at Hotpoint

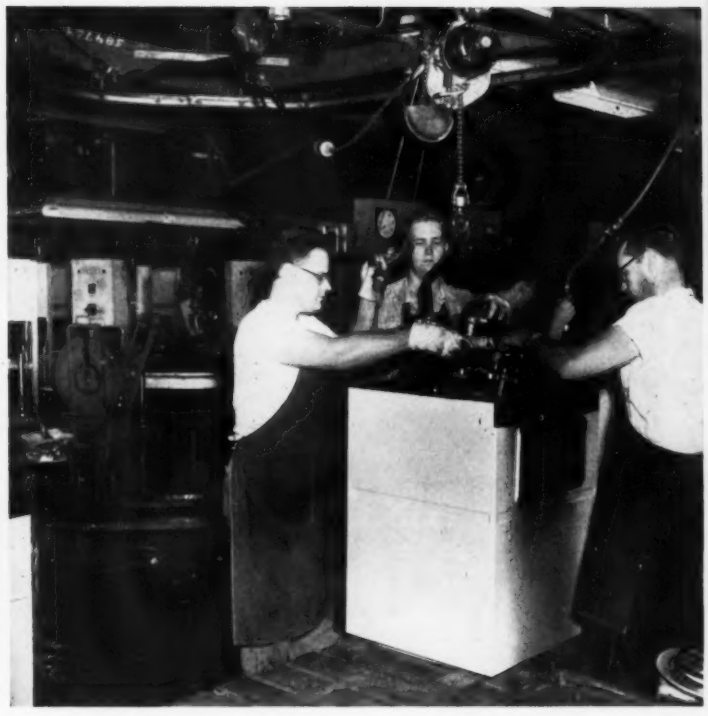
"travelling storage bins" help speed assembly line operations

Part III of a series

illustrated with

finishfotos

Service conveyor feeds sub-assembly lines where sub-assemblies are made up — including the automatic washer "work unit" composed of transmission, motor, drive unit, solenoid, agitator shaft, wiring harness, etc.



Overhead monorails, hoists and the tools required for installation of major sub-assemblies are at the workman's fingertips as the washer and dryer bodies feed to him on lay down conveyors.

ASSEMBLY operations for Hotpoint automatic washers and dryers are performed as straight-line operations on parallel waist-high conveyors — a routine operation in most appliance plants today.

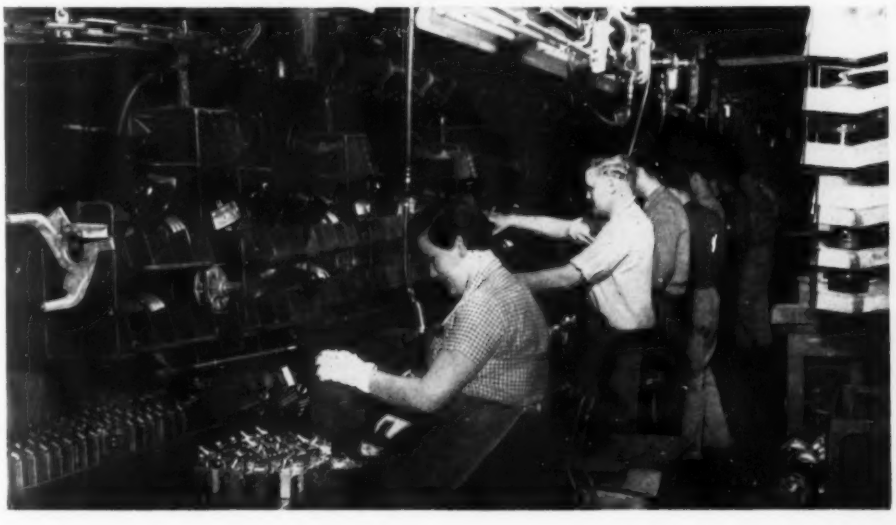
What makes the Hotpoint operation different is the method of feeding component parts to the main assembly lines and to the many sub-assembly areas located near the main lines. Purchased parts are received in a building adjacent to the main plant. Here the parts are inspected and stocked until needed. Parts are then dispatched to the assembly areas by monorail "travelling storage bins", working with about a two-hour lead time.

The conveyor carries these parts past minor sub-assembly areas on to the head of the washer and dryer assembly lines where major sub-assemblies are made up — including the automatic washer "work unit" composed of the transmission, motor, fluid drive, solenoid, agitator shaft, wiring harness, etc.

For a run-down of major assembly operations, let's consider the automatic washer line. The cabinet is delivered from the marshalling area via overhead conveyor and is placed upside down on the slat-type assembly conveyor. After the crate base holes are tapped, the work unit is lowered into the bottom side of the cabinet with an electric hoist and secured in position. (The work unit is given an electrical test on a nearby merry-go-round fixture.)

After diagonal braces and the motor cover are attached with speed-type fasteners, the cabinet continues on the conveyor to a "tilt-up" device which automatically uprights the cabinet. After miscellaneous supports and brackets are attached, the spin tub

By bringing the parts to the worker for all assembly operations the effective use of on the line floor space is greatly increased.



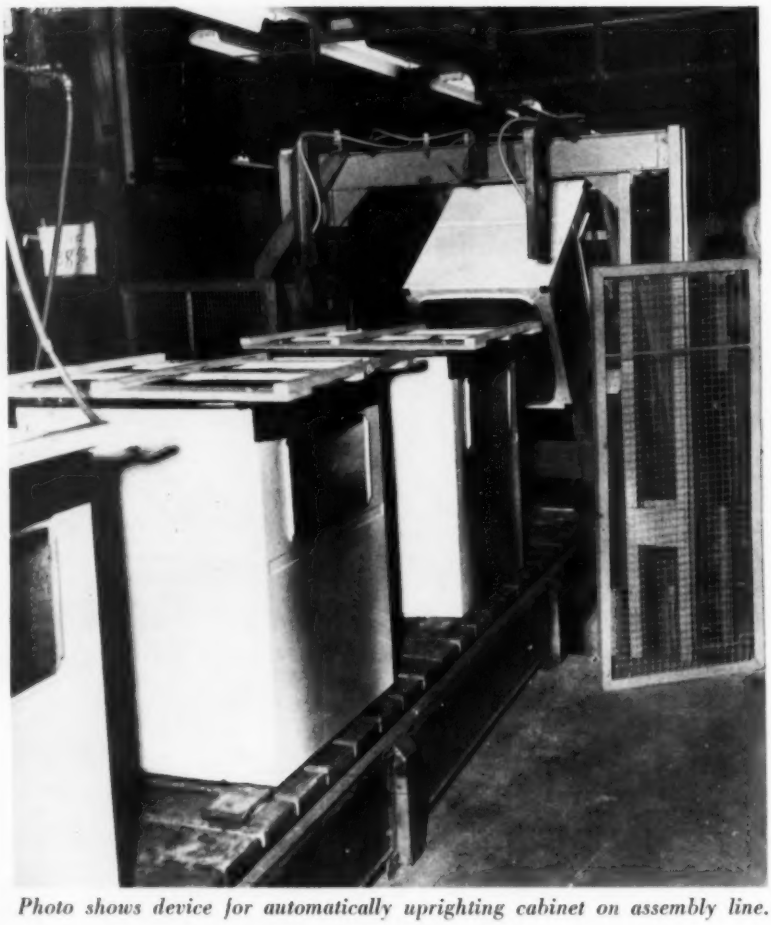


Photo shows device for automatically uprighting cabinet on assembly line.

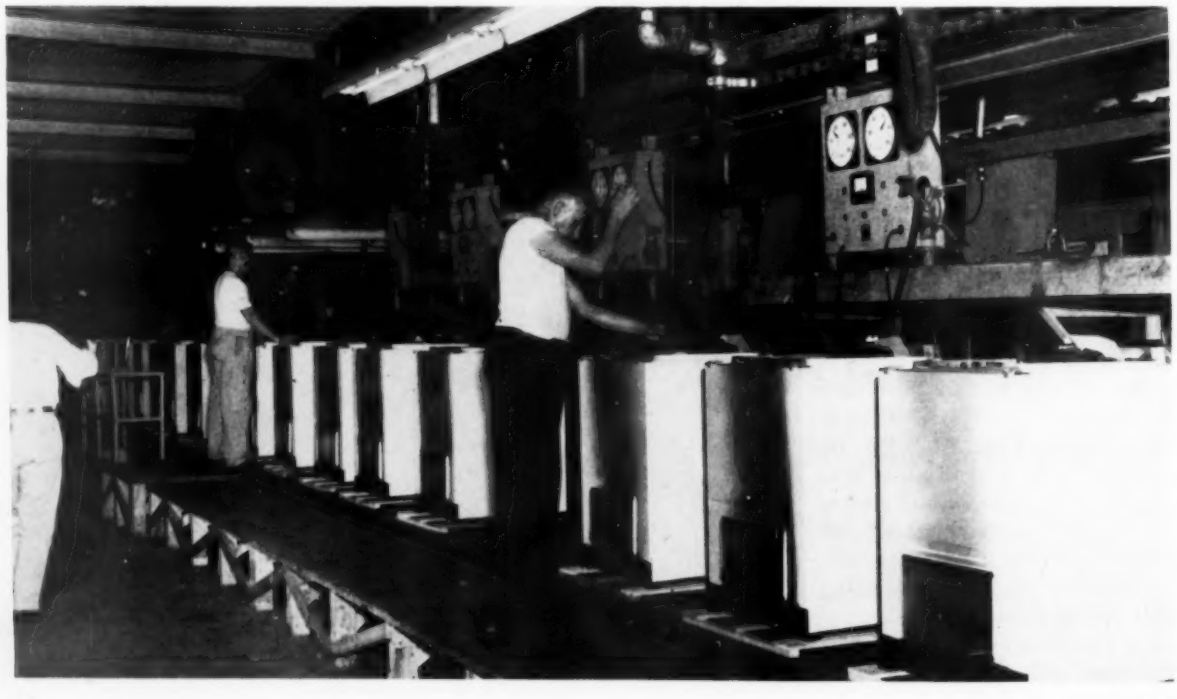
(assembled nearby) and the overflow baffle are added. The control panel with timer, as well as other controls, are added following their sub-assembly nearby.

After the wiring is completed, the washer goes through a "flying test" for a minimum of four minutes. During this electrical test (as the unit moves down the conveyor), the washer is checked for wattage, belt tension, rpm, leaks, etc., with a man in a pit checking operations from the underside of the unit. In addition to this on-the-line test, random production samples are taken daily to the plant's laboratory for complete operation and breakdown tests.

Following the "flying test", the water valve filter screen is tape-closed to keep dirt out, and cross-way pads inserted to immobilize the spinner tub.

After the top and front are attached, the washer is given a final inspection and then shunted to an automatic elevator which lifts the washer to an overhead roller conveyor system feeding the packaging department in an adjacent building.

In addition to on-the-line tests production units are taken daily to the Hotpoint laboratory for complete operation and breakdown tests.



aluminum

The Right Light Screw by SOUTHERN

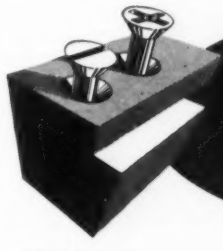
Southern Aluminum Screws give time and weather resistance to products and economy to production —

WOOD SCREWS MACHINE SCREWS TAPPING SCREWS

Also from Southern—all standard size wood screws in Steel, Brass, Silicon Bronze and popular plated finishes, flat, round, and oval with Phillips or slotted heads.
Flat or round head, slotted steel stove bolts.

Write for free samples and stock list. Box 1360-F2

WOOD SCREWS • STOVE BOLTS • MACHINE SCREWS
WOOD DRIVE SCREWS • A & B TAPPING SCREWS
ROLL THREAD CARRIAGE BOLTS • DOWEL SCREWS
HANGER BOLTS



Southern®
SCREW COMPANY
STATESVILLE • NORTH CAROLINA

FACTORY WAREHOUSES: NEW YORK, N. Y. • CHICAGO, ILL. • LOS ANGELES, CAL. • DALLAS, TEXAS

Announcing...

A new heavy duty soak tank cleaner with maximum detergent power—

THE ALL-NEW PENNSALT CLEANER 36

For electro-plating and porcelain enameling cycles.

More Effective at 2/3rds Concentration Than Other Cleaners At Full Strength.

FOR MORE INFORMATION—USE THIS COUPON

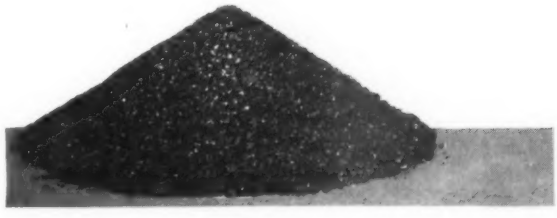
Pennsylvania Salt Mfg. Co.
Metal Processing Dept.
Three Penn Center Plaza, Philadelphia 2, Pa.

Name.....
Company.....
Address.....
City.....Zone....State.....

Pennsalt Chemicals

Try Century Vit

GROUND COAT



"Start right from the Steel out" is more than a slogan — it represents a policy and belief at Century that without an easy-working, trouble-free ground coat with good adherence or "Grip" no finish can give trouble-free service for the life of the product.

The millions of pounds of Century ground coat frit that are used every year by our customers give extra assurance of trouble-free finishes, both in the shop and on the finished product.

Century *time-proved* frits "put dollars in your pockets" too. They are priced right to start and there are "in plant" savings that count up fast.

If you haven't tried this economical, trouble-free enamel, contact us and we'll see that you have the opportunity.

An experienced field staff serves the plants of all Century customers. Phone POrtsmouth 7-7260.

FRIT from CENTURY FRIT MASTERS

CENTURY VITREOUS ENAMEL COMPANY

• 6641-61 S. Narragansett Ave., Chicago 38, Ill. •

THERE'S HEAT THERE'S FAHRALLOY

WHERE THERE'S HEAT THERE'S FAHRALLOY WHERE THERE'S HEAT THERE'S FAHRALLOY WHERE THERE'S HEAT THERE'S

FAHRALLOY...

engineering experience is yours for the asking

For over 20 years Fahralloy engineering experience has helped solve many stubborn problems involving burning tools for the porcelain enamel industry. These range all the way from "S" hooks to complete fixtures for firing washing machine tubs.

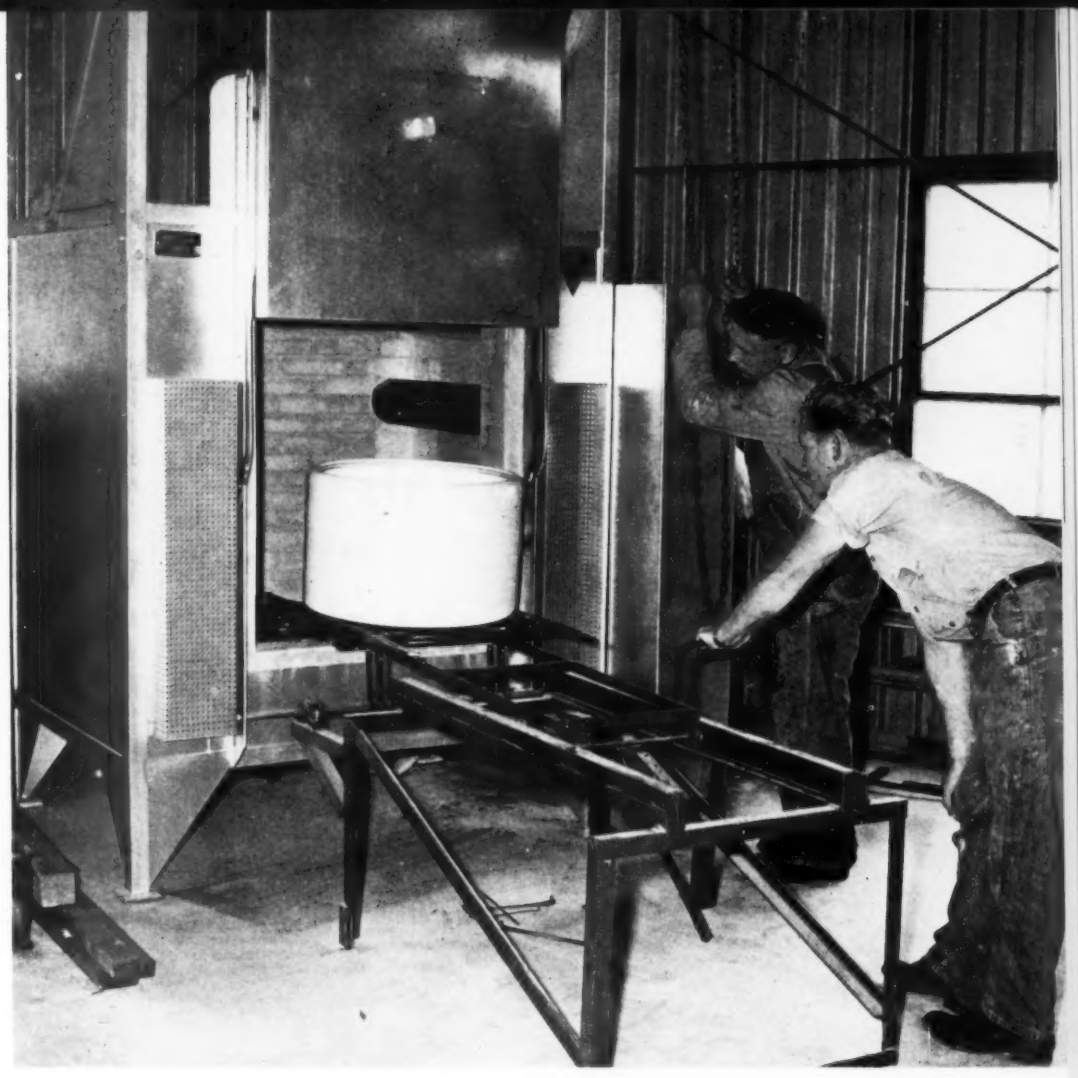
The point is that no matter what your burning tool problem may be . . . no matter how tough you may think it is you can have complete confidence that you'll get the right answer at Fahralloy. Remember, too, that Fahralloy engineering experience is something that can't be bought — but it's yours for the asking.

FAHRALLOY BURNING TOOLS are the No. 1 choice of the Porcelain Enamel Industry

THE FAHRALLOY CO.

150th & Lexington Ave. — Harvey, Illinois

In Canada — Fahralloy Canada, Ltd., Orillia, Ontario



A washer tub goes into the small electric furnace. Adjustable range of temperatures makes this furnace useable for cast iron, pottery, aluminum, etc., as well as for conventional sheet steel enameling.

Hobby, Incorporated

experienced enameler turns a hobby into a "retirement" business

by Gilbert C. Close • WESTERN EDITOR

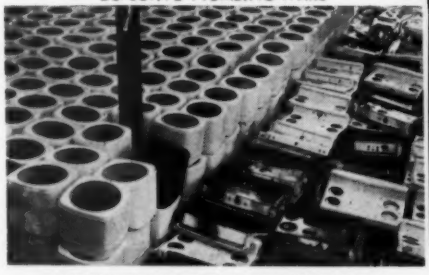
THE title of this article is a good thumb-nail description of Gem Enamel Products, Downey, California, for Gem Enamel Products is just that — a hobby grown to corporation size. It is the outgrowth of a dream of a man who has always regarded porcelain enameling as both his job and his hobby. That man is well known in the porcelain enameling industry. He is Glen Fulton, president of Gem Enamel Products, and was concurrently superintendent of the porcelain enameling department at Norris-Thermador Corporation at the time the "hobby" was started.

Fulton explained his dual role in this way — "My retirement time at Norris-Thermador was approaching, but I didn't want to leave enameling work . . . ever! So, I started Gem Enamel as a sort of hobby shop that would keep me busy and permit me to try out a few ideas I've had in mind for years. Some of these 'ideas' proved so acceptable to the industry, and our business grew so rapidly, that we had to incorporate."

Repair work and repair prevention work

One of Fulton's original ideas was the establishment of a repair shop to serve all facets of the porcelain enameling industry, the industry's wholesale customers and even the private individual who needed repair work on an enameled product. Another of his original ideas was to apply a protective coating on enameled sanitary ware, after it was installed on a construction project,

DEFECTIVE PLUMBING-WARE



DEFECTIVE WASHERS AND RANGE TOPS

THE CAUSTIC BATH

THE WASH-OFF

SANDBLASTING

D-ENAMELING SAVES UP TO 50% OF ORIGINAL PART COST

Over the past four years, D-Enameling has more than proved its dollars and cents value to manufacturers of ranges, bathtubs, sinks, refrigerator liners and washing machine tubs. Before D-Enameling, these manufacturers had to scrap defective parts. All the material and labor that went into them was a complete loss. Now, for a small cost, these same manufacturers are able to transform defective parts into first line salable, profit-building products. To cost-conscious management it is obviously smart business to spend a few dollars to save many more. One stove manufacturer, for example, through D-Enameling has been able to save as much as 50% of the original cost of range tops. If you're interested in cutting costs, it will pay you to find out about D-Enameling now. You'll be agreeably surprised how much the simple economics of D-Enameling can benefit you.

May we discuss this soon?

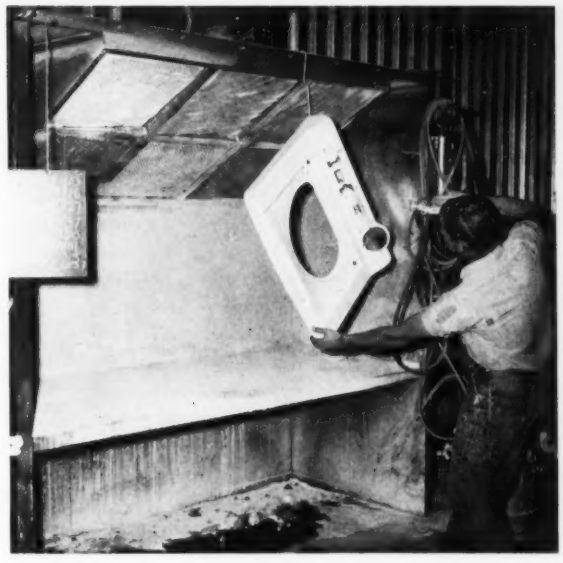
THESE INDUSTRY LEADERS KNOW FROM EXPERIENCE THAT D-ENAMELING TRANSFORMS SCRAP LOSS INTO PROFIT DOLLARS

ARROW SIGN CO. • BRIGGS MANUFACTURING COMPANY • CAPITAL AIRLINES • CHALLENGE STAMPING & PORCELAIN CO. • CLEVELAND-TENNESSEE ENAMEL COMPANY • CONLON-MOORE CORPORATION • CRIBBEN AND SEXTON COMPANY • CROWN STOVE WORKS • DWYER PRODUCTS CORPORATION • ESTATE HEATROLA DIVISION • FLORENCE STOVE COMPANY, Kankakee • GIBSON REFRIGERATOR COMPANY • GLOBE AMERICAN CORPORATION • GRAY & DUDLEY CO. • ICE COOLING APPLIANCE CORPORATION • LAWNDALE ENAMELING CO. • A. J. LINDEMANN & HOVERSON COMPANY • MAGIC CHEF INC. • MALLEABLE IRON RANGE COMPANY • MAYTAG CO. • MURRAY CORP., Scranton • NORGE DIVISION, Effingham • NORGE DIVISION, Muskegon Heights • PRENTISS WABERS PRODUCTS CO. • GEO. D. ROPER CORPORATION • RHEEM MANUFACTURING CO. • SAMUEL STAMPING & ENAMELING CO. • A. O. SMITH CO. • THE ENAMEL PRODUCTS COMPANY • TYLER FIXTURE CORPORATION, Waxahachie • WHIRLPOOL CORPORATION, CLYDE DIVISION

New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

Left: "Hand loading" the shop's single 300 lb. ball mill. Overhead conveyors, chutes, etc., will come in time.



Right: White coating an appliance part in the company's 8 ft. air-evacuated spray booth.

that would protect it from possible damage during the remainder of the construction work. Both of these ideas took root immediately, and today repair work on damaged enameled products and the protection of installed enamelware during the later stages of construction constitute a major portion of Gem Enamel Products' business.

Other types of work have appeared to supplement these major lines. Job pickling work, hand lettering, the application of color coats over white côats, and job-lot enameling and hand-lettering of novelties and specialties are increasing.

"Gem Enamel Products is good evidence that it doesn't require a million dollars to get started in the enameling business", Fulton says. "Good ideas and a genuine interest in the work will suppliment a lot of capital. Couple these with basic equipment, and you're in business!"

The shop now occupied includes some 2400 sq. ft. of floor space, with an addition being planned to house a new furnace now on order. Present shop equipment includes a small electric furance, a 300-lb. ball mill and an 8ft. spray booth. Pickling facilities are located outdoors under a canopy and will soon be joined by complete stripping facilities.

"We have a 100 lb. ball mill on order which we'll use for milling colors," Fulton said.

The furnace operates at temperatures adjustable up to 2200°F., which makes it possible to do work on cast iron, pottery, aluminum, etc. as well as on regular enameling iron.

Eight employees handle the in-shop work as well as the field work associated with the protection of enameled sanitary ware during construction. A competent artist is available for the hand lettering and art work as it appears.

De-enameling and re-enameling

As already noted, repair work on cracked or chipped enameled appliances constitutes the major portion of in-shop work. Customers for this service include the local stores and warehouses of Sears, Roebuck and Co., ABC Sales Organization, Van Corporation and a number of local trailer manufacturers who install enameled appliances in trailers. Some of this work is stripped before it is brought in, then completely re-enameled; less obvious damage is repaired by patchwork. When it is wanted, a color coat will be applied over the existing white coat.

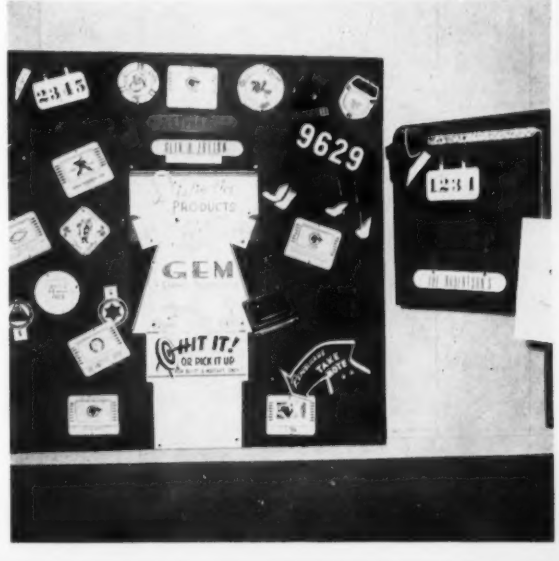
"But don't let the above big names confuse you", Fulton warned. "We'll accept work just as readily from a private individual who wants the chipped enamel on. his refrigerator door repaired."

The field service associated with

to Page 50 (column 3) →

Left: A truck load of appliances to be repaired arriving at the Gem Enamel Products shop.

Right: Samples of miscellaneous small items, many of them hand lettered, as produced by "Hobby, Inc."



Major appliance div. NEMA . . . a big '56

(Continued from Page 23)

Dichter of the Institute for Motivational Research. Dr. Dichter was introduced by Homer Manwaring, Philadelphia, Electrical & Manufacturing Company, Vice Chairman of the Major Appliance Division.

Dr. Dichter discussed the application of social sciences to business problems. The data presented was based on 600 major motivational studies and 150,000 case histories conducted by his company.

According to the speaker, we are in a psycho-economic age where in many instances, vague and "silly sounding" reasons govern the sales of competitive products, more than the practical "bolts and nuts" reasons. Psychological nebulous, vague and intangible reasons are often the governing factors. The intangibles may be classed as Factor "X".

The "unreasonable" or "irrational" reasons aren't usually considered as buying factors comparable to the practical down to earth "bolts and nuts" story when planning sales and advertising for home appliances.

The speaker pointed to the fact that the homemaker has changed from the "old fashioned woman" to the "career woman" and now may be considered the "balanced woman" with desires at a point someplace between the old fashioned and the requirements for the career woman.

According to Dr. Dichter the push button range may not be the answer to the requirements of the woman of the future. He made three specific suggestions to appliance manufacturers:

1. Be aware of the psycho-economic age as against the technological.
2. Stress the personality of your company and product.
3. Recognize changing times and personalities and the changing personality of buyers.

He further suggested that manufacturers lay off the "nuts and bolts" story and that they not overstress the convenience story. "It's the woman's skill and creativeness that counts."

Sameness of products as to quality and performance makes buying difficult and increases the importance of the intangible buying motives.

The Chairman of the NEMA Major Appliance Division is R. J. Sargent, Westinghouse Electric Corporation.

The spirit of the Chicago NEMA Major Appliance Division meeting was one of planning for the future — both for 1956 and beyond. The whole merchandising concept on major electric appliances is one of growth.

Finishing before fabrication

(Continued from Page 38)

in the aerated water bath without blistering, lack of adhesion or film separation; a four pound ball drop test through 40 inches without fracturing the finish. All awning colors are tested for a minimum of 500 hours in the weatherometer and 6 months exposure on test racks in Florida. Spot tests under watch glasses include the following materials:

Sodium hydroxide
Household bleach
Ammonia
Lard oil
Lipstick
Cold cream
Citric acid

These and other tests are applied to material for tile. One includes a 4-ounce per gallon soap solution at 160°F. This product must withstand four hours without discoloration.

It is a little difficult to give an accurate description of the Hastings Aluminum Products plant for, since it was started only eight years ago, there has been continuing expansion, addition of new equipment, etc. When it was viewed by a *finish* editor, the plant had expanded from an original size of approximately 2040 square feet to the current size of some 70,000 square feet. A new line which currently is being installed will practically double the capacity of the plant, which is now among the largest users of sheet aluminum in the country.

Note: finish *desires to give personal credit to the following personnel for technical assistance in the preparation of this article: Richard Cotter, vice president; James Cotter, plant superintendent; Ben Carr, assistant plant superintendent (in charge of paint operation); Joe Lindner, press room foreman.*

Hobby, Incorporated

(Continued from Page 49)

the protection of enameled sanitary ware on construction projects is meeting with enthusiastic acceptance. "This is an idea I carried around with me for years", Fulton says. "In most instances a lot of construction work remains to be done after the sanitary ware is installed, and chances that the enameled surfaces may become damaged are very great. To prevent this possibility, we go out on the job and apply a protective coating on all exposed enameled surfaces. This coating consists of a fabric impregnated with a rubbery plastic substance which will cushion the effects of any blow that might cause enamel damage. This coating is left in place until final inspection and acceptance of the construction job. As an additional service we have perfected a cold patching technique which we can use out on the job to repair any enameled surfaces that have been damaged."

Enameling and hand lettering of specialty and novelty items is becoming an important phase of the work at Gem Enamel Products. These items range all the way from hand-lettered signs through ash trays, paper weights and name plates.

Needless to say, Glen Fulton is very proud of the progress made by Gem Enamel Products during its short period of existence. "But I'm more proud yet of the help and encouragement extended me by members of the porcelain enameling industry while I was getting started," Fulton says. "Without this help and encouragement Gem Enamel Products might have remained what it started out to be — just a hobby shop where I could tinker away my time . . . "

Pages 51-54 heavy cardboard discarded

Speaker's table, left to right, Arthur J. Tuscany, Jr., executive secretary-treasurer, SKCMA; Jerry Schneider, Harrison Steel Kitchens; guest speaker J. T. Miller, Meredith Publishing Co.; SKCMA president H. S. Lawrence, Capitol Kitchens; vice president SKCMA R. A. MacNeille, St. Charles Mfg. Co.

Steel kitchen cabinet manufacturers meet

sales up and "steel kitchen cabinet month" a success

NEXT year's observance of Steel Kitchen Cabinet Month, national promotion of the steel kitchen industry, again will be celebrated in September — same month as this year's promotion — it was decided at the Fall meeting of the Steel Kitchen Cabinet Manufacturers Association in the Edgewater Beach Hotel, Chicago, Thursday, October 6.

September won the unanimous approval of the more than 46 representatives of steel kitchen cabinet producers attending the meeting, after hearing reports of the success of this year's effort.

Launched for the first time in 1954, Steel Kitchen Cabinet Month was more widely observed this year by steel kitchen dealers and distributors than in its first year, with substantial growth in consumer interest, it was reported. More than 20,000 packages of display materials for the dealer windows and showrooms were used. Special 8-page newspaper sections, along with mats and original photographs, were used by more than 114 newspapers in key marketing centers. Special press kits—19,000 of them—were distributed to dealers and used in local marketing areas.

Early reports of sales response are good, it was reported, although the promotion is too recently ended to measure its specific impact. Photographs of dealers' use of the display materials were displayed, however, as example of effective dealer tie-in to the effort, and example of the great number of special feature sections published by newspapers were displayed by the association's publicity counsel, the Lawrence H. Selz Organization, of Chicago.

Suggested display pieces for use next year were shown to the steel kitchen producers by the association's promotion committee, of which E. J. Catlin, sales manager, Morton Manufacturing Co. (Kelvinator Cabinets), is chairman.

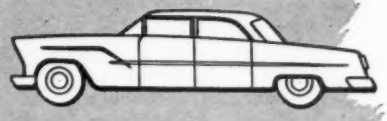
Unit sales 20 per cent over 1954

Continued gains in steel kitchen cabinet sales were reported at the meeting. Dollar sales are more than 12 per cent ahead of 1954 and unit sales are greater by more than 20 per cent in the first six months, it was reported. With the sales curve continuing its upward climb, sales for the entire year of 1955 are expected to set a new record high in the history of the industry.

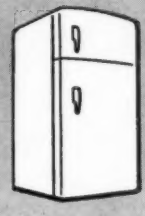
The general meeting of the association membership was held in the afternoon following a series of committee meetings including sessions of the sales promotion, technical, statis-

to Page 99 →

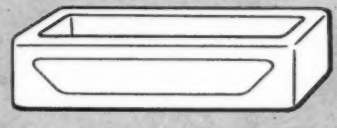
E. J. Catlin, Morton Mfg. Co., shows promotion material for steel kitchen cabinet month to D. G. Fanelli, Crosley-Bendix; C. K. Reynolds, Jr., Republic Steel Kitchens; M. M. Miller, Beautycraft Kitchens; C. Fred Hastings, American Kitchens.



1st in every finish



...TITANOX®



For prize-winning finishes—gleaming whites or modern pastels—TITANOX white pigments are first choice. TITANOX titanium pigments are truly "blue ribbon" pigments, outselling all other makes combined.

For industrial finishes, TITANOX-RA, TITANOX-RA-50 and TITANOX-RA-NC stand out. Easy mixing and easy dispersing, these pigments give you the exact qualities of brightness, whiteness, opacity and resistance to fading and chalking that you desire.

For porcelain finishes, specially developed non-pigmentary TITANOX-TG and TITANOX-TG-400 are now the accepted standards of the industry.

Our Technical Service Department will be glad to help you with your finish problems. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 2; Boston 6; Chicago 3; Cleveland 15; Houston 2; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 14, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

®TITANOX

brightest name in the finish

3058-A

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

The new RCA Victor office buildings in Camden, New Jersey, where the architect has used light colored, long, vertical corrugated sheets of porcelain enameled steel set in stainless steel supporting frames.

Architect: Vincent G. Kling

Architects prefer color in metal curtain wall construction

two day BRAB conference features Metal Curtain Walls

COLOR is definitely preferred by architects in designing their buildings, it was pointed out at the conference conducted in Washington by the Building Research Institute, September 28 and 29. At the two-day conference on the subject, "Metal Curtain Walls", a survey report told that 99% of the architects reporting would use colored panels and that 95% were willing to do so at extra cost. They also indicated that the color should be permanent.

Purpose of the conference was to evaluate the performance to date of this type of construction, study the problems discovered and examine ways to overcome them, and summarize the technique as to its future. Featured were presentations of several reports of recent studies on the subject, including the results of a performance survey completed this year by the Building Research Advisory Board. More than 500 architects, engineers, designers, contractors, builders, educators and manufacturers attended the meeting.

Metal curtain walls are prefabricated non-load-bearing exterior surface finishes for buildings. Aluminum and stainless steel, porcelain enameled steel and enameled and anodized aluminum are the materials most used by the building industry today for metal curtain wall construction. Not until 20 years ago did the industry start intensive study of this type of construction. "Now", stated Edward X. Tuttle of Giffels & Vallet, Inc., the conference chairman, "more than half the new buildings today use curtain walls of some kind." Improved quality, reduction in cost and speed of erection were cited as advantages in metal curtain wall construction.

"We look upon the curtain wall construction field as one of our industry's greatest existing and potential markets", said John C. Oliver, secretary of the Porcelain Enamel Institute (The Institute was a co-sponsor of the conference). He continued, "We count upon two factors as holding great interest to architects — permanent colors in an infinite range and a large variety of texture possibilities."

The enameling industry was represented at the meeting by steel or aluminum suppliers, frit, adhesive and core materials suppliers and manufacturers of architectural materials.

FERRO SPONSORS $25,000 ARCHITECTURAL COMPETITION

To stimulate architects, designers, draftsmen and architectural students to find new uses, improved application methods and create better designs using porcelain enameled steel and aluminum, the Ferro Corp., Cleveland, through Glenn A. Hutt, vice president, Building Products Div., is sponsoring a $25,000 design competition that has been approved by the committee on competitions of the American Institute of Architects.

The sponsor appointed *Architectural Forum*, building industry magazine, to conduct the contest. Registration forms and a formal announcement of the competition appeared in a recent issue.

Use of porcelain enamel metal in construction has increased 25-fold since 1940, and it is now being adapted to many new exterior and interior building uses almost daily, Hutt pointed out. But so far, he added, only a limited number of designers have gained a knowledge of its advantages, and only a few of its limitless possibilities have been thoroughly investigated. One basis for competition awards will be "practical new uses of these materials and improved methods of detailing". Another basis will be "skill in planning and excellence of design".

Twenty-five prizes of $500 to $5,000

The competition has two divisions: one is the design of an elementary school, the other a community center.

to Page 98 →

A graduate Fellowship in home economics, established by the National Electrical Women's Round Table, Inc., has been named in honor of Mrs. Julia Kiene (center), retiring director of the Westinghouse home economics institute. Adelaide Fellows (left), director of home economics, Philco, is on EWRT committee. Betty Olson (right), manager of home economics dept., Monsanto Chemical, is national vice president of EWRT.

finish . . .

on the theory that one photo equals a
feature will bring you many photos a
metal produ

This Admiral "up-side-down" dual-temp refrigerator has a magic ray lamp to prevent foods from trading flavors, an automatic excess moisture disposal system, a "touch-o-matic" door opener and other features. It is available in white, sea mist green and primrose yellow.

←
"Welcome to Chicago" is extended to Comm. Francesco Bonelli (center), of Milan, Italy, by George J. Papas, general manager of purchasing of Rheem Manufacturing Company. Comm. Bonelli, president of Societa Per Azioni Fusti E. Imballaggi Metallici, Italian affiliate of Rheem, is accompanied by Raffaele Tovini (left), technical director of the Italian company.

←
Republic Steel Kitchens present this picture of "Miss Stainless Steel of 1975" selected for November's observance of "Stainless Steel Month." Facilities for the production of Republic Kitchens were described in the March 1953 issue of finish.

→
Expansion at the Norge Effingham plant has doubled production of Norge home dryers according to a company report.

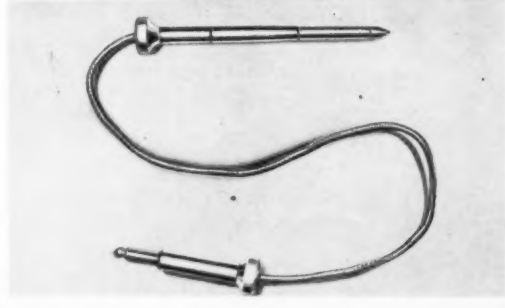
. . . . foto-news

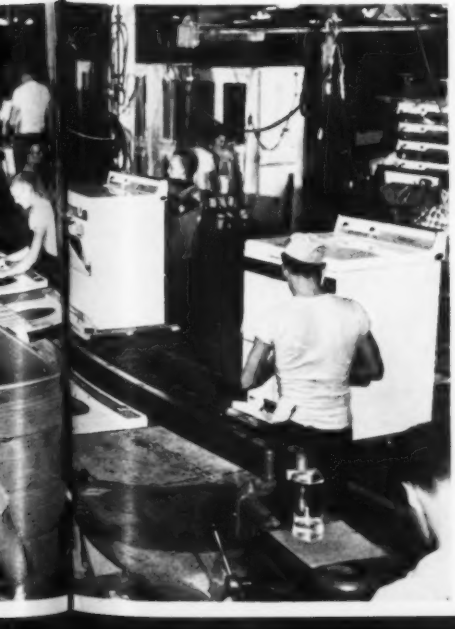
ls a thousand words, this new *finish* foto-news es a few words about people and products in the oduct field . . . . . .

John C. Sharp, president Hotpoint Co., congratulates four national Hotpoint Living-Conditioned House winners at recent award ceremony in Chicago. They are: Mrs. Jay W. Shoots, Cuba, New York; Mrs. Robert B. Todd, Oakland, Calif.; Mrs. Edmund Freundt, Indianapolis, Ind.; and Mrs. Norman A. Herendeen, El Paso, Texas. Homes are valued at $30,000 and will be completely furnished, landscaped and decorated.

Amana's new Stor-Mor freezer-refrigerator provides eight levels of engineered cold. Below the family size refrigerator is a freezer holding 297 pounds of frozen food. The two doors together hold 120 pounds. Freezer door has vertical gravity-fed racks.

→ *The new Roastmeter featured in two of Philco's 1955 electric ranges employs a stainless steel probe for checking temperatures inside a roast and the temperature is, in turn, indicated on the range control panel, giving the homemaker an accurate report on cooking progress without opening the oven door. The case for the unit is fabricated of type 321 titanium-bearing stainless.*





→ *Freezer sales champ— Stanley Jackson, Kelvinator district manager at Minneapolis, accepts the keys to his new Nash Rambler Cross Country station wagon, first prize in the company's mid-year freezer sales contest. Jackson topped a field of 24 contest winners to take the national prize. Others in the photograph are Vincent Gillis, Nash; F. M. Breault and William L. Hullsiek, Kelvinator.*

make a date NOW to see "EVERYTHING UNDER CONTROL"

A COLOR-SOUND MOTION PICTURE
to help sell your products!
AVAILABLE TO YOU AT NO COST

SUBJECT: *Ceramic Coating Materials*

Pemco has just released a feature-length motion picture for use by companies using porcelain enamel finishes, glaze finishes and other ceramic coatings. The 16 mm color-sound movie tells how frits for glazes, porcelain enamel and other ceramic materials are made and gives viewer background information on the inherent advantages of such finishes.

The film is of interest to Management, Sales, Production, Research, Design and Advertising men or to any other executive concerned with the manufacture and sale of products using these lifetime finishes.

"Everything Under Control" is ideal to fill out your program at meetings of Management, Foremen's Groups, Production Supervisors in an instructive and entertaining manner. It's also excellent for showing to college classes and sectional meetings within the Ceramic Industry.

of interest to –

SALES

CONTROL

RESEARCH

MANUFACTURING

RESERVE A PRINT FOR YOUR SHOWING NOW!

Naturally, we do not have sufficient prints of this film to meet everyone's needs at the same time, so please be sure and give us *three* alternate dates for your showing. We'll do everything in our power to meet your first choice, but this will have to be on a First Come—First Served basis.

PEMCO CORPORATION
BALTIMORE 24, MARYLAND

—FILL OUT, TEAR OFF AND MAIL TODAY!—

PEMCO CORPORATION
BALTIMORE 24, MARYLAND

Yes, we have _____ people who should see "Everything Under Control".
Please send us a print for:

1st Date _____ 2nd Date _____ 3rd Date _____

Name _____ Title _____

Company _____

Street _____

City _____ Zone _____ State _____

Manufacturers of "*The World's Finest*" Porcelain Enamel Frits for steel, cast iron and aluminum; Coloring Oxides; Screening Pastes; Glaze Frits; Body and Glaze Stains; Underglaze and Overglaze Colors; Vitrifiable Glass Colors.

3 TO FLORENCE STOVE BOARD

Robert D. Putman, Harold H. Jeske and Francis X. Mettenet have been appointed to the board of directors of Florence Stove Co., Chicago, it has been announced by John R. Wright, board chairman.

Mettenet is also a consultant; Putman is vice president in charge of sales; and Jeske is vice president in charge of operations of the Kankakee, Ill., plant.

SUTTON NAMES KINNEY CHIEF MOTOR ENGINEER

Dan J. Mull, vice president-engineering, The O. A. Sutton Corp., Wichita, Kan., has announced the appointment of Floyd M. Kinney as chief motor engineer.

MAROHN IS MAGIC CHEF EXECUTIVE VICE PRESIDENT

James A. Marohn, vice president, finance and treasurer, Magic Chef, Inc., St. Louis, has been elected executive vice president by the board of directors.

Marohn joined Magic Chef in 1954, after serving with the Gruen Watch Co. and the Noma Electric Corp.

WESTINGHOUSE UPS MASSENBURG, ANDERSON TO KEY POSTS

The appointments of W. B. Massenburg as assistant manager of portable appliances and C. E. Anderson as manager of the fan department have been announced by J. J. Anderson, manager of portable appliances for Westinghouse Electric Appliance Div., Mansfield, Ohio.

Prior to the appointment, Massenburg was manager of the fan and vacuum cleaner departments. Anderson was formerly merchandise manager of fans.

A. O. SMITH APPOINTS DONNELLY ASST. TO V P

The A. O. Smith Corp., Milwaukee, has announced that James F. Donnelly, formerly assistant manager of the Permaglas Div. at Kankakee, Ill., has rejoined the company as special assistant to F. S. Cornell, vice president and general manager. For the past three years Donnelly was a vice president of Servel, Inc., Evansville, Ind.

SERVEL NAMES DEFINO AIR CONDITIONING HEAD

Appointment of Anthony J. DeFino to the top position in the air conditioning division of Servel, Inc., Evansville, Ind., has been announced by Duncan C. Menzies, president.

As vice president and general manager of the autonomous air conditioning division, DeFino will be in charge of manufacturing, marketing, distribution and customer service on "all-year" air conditioning equipment.

For the past 6 years he has been vice president and general manager of Fedders-Quiggan Co., Buffalo, N.Y.

DAVE CHAPMAN TO BOARD OF INDUSTRIAL DESIGNERS

Chicago industrial designer Dave Chapman has been elected to the board of directors of the Society of Industrial Designers.

He is a fellow of the Society, for which he served as sixth president. He is senior partner of the firm which bears his name and president of the affiliate organization, Design Research, Inc.

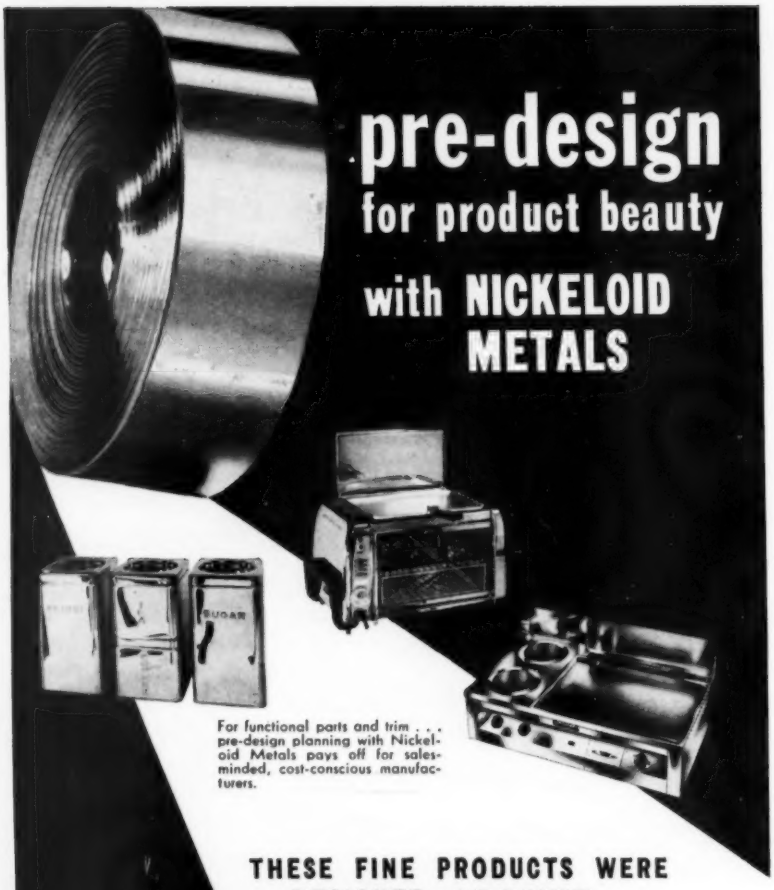
POWELL TO KELVINATOR AS ASST. CHIEF ENGINEER

Herschel F. Powell has been named assistant chief engineer in charge of testing, designing and development of new refrigerator models for Kelvinator Div., American Motors Corp., Detroit, announced Dr. William Mikulas, chief engineer.

For the past 15 years Powell was with Gibson Refrigerator Co., Greenville, Mich., where he was assistant manager of engineering.

RHEEM TO BUILD WEST COAST PLANT

A broad expansion of its automotive division, geared to meet requirements of the automobile industry, was revealed as Rheem Mfg. Co. announced the acquisition of a 59-acre site and plans for a new plant in Fullerton, Calif. W. S. Rheem II, vice president and general manager, said the new facility and equipment



For functional parts and trim . . . pre-design planning with Nickeloid Metals pays off for sales-minded, cost-conscious manufacturers.

THESE FINE PRODUCTS WERE DESIGNED *AROUND* NICKELOID METALS

In the pre-design stage . . . before investing in tools and dies . . . consider pre-plated Nickeloid Metals. Take full advantage of their inspiring design potential and basic production savings, too. PRE-plated in uniform, quality-controlled finishes of chrome, nickel, copper or brass on base metals of steel, zinc, copper, brass and aluminum — Nickeloid Metals require no cleaning, plating, polishing. Just fabricate the parts and assemble. Eliminate 3 out of 5 basic manufacturing steps; save time, reduce costs, increase output.

MAR-NOT PROTECTION

To protect the brilliantly finished surface during drawing and forming operations, and in handling, Nickeloid Metals are available with MAR-NOT — a protective covering that affords absolute protection until final assembly, then may be peeled off. **Write for full details.**

SHEETS • COILS • STRIPS

NICKELOID METALS
SINCE 1898

AMERICAN NICKELOID CO.

PERU 11, ILLINOIS

will represent an added investment in excess of $6,500,000.

3 NEW AHLMA MEMBERS

Guenther Baumgart, executive director, has announced the election of three new companies to associate membership in the Amercian Home Laundry Manufacturers' Association. They are The General Tire and Rubber Co., Wabash, Ind., Besco, Inc., Mansfield, Ohio, and H. W. Tuttle & Co., Adrian, Mich.

DIE CASTERS NAME OFFICERS

The American Die Casting Institute has announced the election of officers for 1956. William J. During, president, Precision Castings Co., Syracuse, N. Y., was re-elected president. George Ralls, president, Pressure Castings, Inc., Cleveland, was re-elected vice president. David Laine and W. J. Parker, American Die Casting Institute, were re-elected secretary and treasurer, respectively.

AGA & PMI WIN SAFETY AWARD

American Gas Association and the Pressed Metal Institute were included in a list of 11 associations which did outstanding work in preventing occupational accidents during 1954. They were cited at the 43rd National Safety Congress and Exposition in Chicago, Oct. 17-21.

10 NEW NEMA MEMBERS

Ten electrical manufacturers have joined the National Electric Manufacturers Association raising membership to 578, it was announced by A. F. Metz, president.

The new members are: Acme Battery Corp., Brooklyn, N. Y.; Anderlab, Inc., Aurora, Ill.; Bright Star Industries, Clifton, N. J.; Burgess Battery Co., Freeport, Ill.; General Dry Batteries, Inc., Cleveland; Hill Transformer Co., Inc., San Carlos, Calif.; Marathon Battery Co., Wausau, Wis.; Olin Mathieson Chemical Corp., New Haven, Conn.; Ray-O-Vac Co., Madison, Wis.; and United States Electric Mfg. Corp., New York City.

AUG. INDUSTRIAL FURNACE SALES UP 114%

Carl L. Ipsen, executive vice president, Industrial Heating Equipment Association, has announced that orders for industrial furnaces during August, 1955, totaled $6,273,053, compared to $2,570,761 in 1954, an increase of 144%.

GAMA ELECTS SIX MEMBERS

Six companies have been elected members of the Gas Appliance Manufacturers Association, bringing the total membership to 589, according to H. Leigh Whitelaw, managing director.

New members and their products are Edgewood Mfg. Co., Baldwin Park, Cal., circulating gas water heaters; Webster Valve Co., West Franklin, N. H., pressure and temperature relief valves; Star Metal Mfg. Co., Inc., Philadelphia, gas hot food serving tables and gas coffee urn equipment; American Kitchens Div., Avco Mfg. Corp., Connersville, Ind., kitchen cabinets, dishwashers and vent fans; Steven Mfg. Corp., Nashville, Tenn., domestic cooking appliances; and Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill., combustion safeguards.

ARI SALES FIGURES

Retail movement of room air-conditioners reached an all-time high during 1955 selling year of about 1,300,000 units, compared with about 1,000,000 units during 1954, according to the Air-Conditioning and Refrigeration Institute.

AUG. HOME LAUNDRY SALES BREAK RECORDS

Home laundry appliance sales for August, 1955, totalling 546,065 units, were the highest of any month in the history of the industry, Guenther Baumgart, executive director of the American Home Laundry Manufacturers' Association, has announced. August sales were 5% greater than the previous peak of 517,411 units sold during October, 1950.

Total sales for the month were

Need a design change to spark sales? Stainless trim can do the job—without major die changes! Sparkling stainless can be tailored to your exact needs—often with existing tools or slight modification. Stainless moulding blends with all color schemes—picks up and reflects surrounding colors for added accent And, best of all, stainless will not chip or fade—remains bright *always*. Write today for *your* copy of Pyramid's "Plan Book of Metal Mouldings."

Pyramid Mouldings Inc.
5365 WEST ARMSTRONG AVE., CHICAGO 30, ILL.
NEW YORK...CALIFORNIA

SEND FOR YOUR FREE COPY OF "PLAN BOOK OF METAL MOULDINGS"

No one connected with the design or manufacture of any appliance should be without a copy of this book containing hundreds of standard and special mouldings. Send for your free copy today.

Without obligation, please send copy of "Plan Book of Metal Mouldings." F-11

Name _____ Title _____

Firm _____

Address _____

HERE IS A SINGLE SOURCE

for everything you need to apply better ceramic finishes...faster and more economically. Binks spray guns for ceramics are made with tungsten carbide reinforcements to protect them from abrasive frit. The new 67-PD nozzle gives you up to 8 hours between cleanings. Stainless steel tank liners and agitators guard against costly contamination.

When you standardize on Binks equipment you have a completely integrated ceramic finishing department. Each Binks product is specifically designed to give top efficiency with every other Binks product. One purchase order covers everything you need...nationwide distribution assures you of immediate service...technical assistance and schooling for your employees is yours for the asking...and you always know you are getting the best spray equipment money can buy...the equipment preferred by leading manufacturers everywhere.

148-55

Binks
EVERYTHING FOR CERAMIC FINISHING

ASK YOUR DISTRIBUTOR
for a copy of Binks big 956 Catalog-Data Book which describes the complete line, or write direct to the address below. No obligation.

Binks Manufacturing Company
3122-40 Carroll Ave., Chicago 12, Illinois

REPRESENTATIVES IN PRINCIPAL U. S. AND CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

75% above July, 1955, and 44% above August, 1954. Cumulative sales for the first 8 months of 1955 totalled 3,523,526 units, 32% higher than the corresponding 1954 period.

NEMA 7-MO. SALES FIGURES

The following sales figures for the first seven months of 1955 have been released by the National Electrical Manufacturers Association: electric ranges, 785,278; electric household refrigerators, 2,383,340; electric storage water heaters, 417,182; and electric farm and home freezers, 427,356.

GAS FURNACE SHIPMENTS UP

Shipments of gas-fired warm-air furnaces for the first eight months of the year totalled 517,000 units, an increase of 35.9% over 1954, according to Edward R. Martin, director of marketing and statistics, Gas Appliance Manufacturers Association.

HEINIS RHEEM PRODUCTS DIV. GENERAL MANAGER

Vearl J. Heinis has been appointed general manager of the Rheem Prod-

ucts Div., Rheem Mfg. Co., Chicago, announced R. S. Rheem, president.

G. M. Greenwood, formerly treasurer, has become chief financial officer, and Gordon W. Mallatratt, previously general manager of Rheem Products, becomes secretary and treasurer. Both men are vice presidents of Rheem.

Heinis was formerly general sales manager of Rheem Products.

NEW ASTE CHAPTERS

Chapter charterings of the American Society of Tool Engineers have been given to new chapters in Centinela Valley, Calif., and Monmouth, N. J.

WATER HEATER SHIPMENTS SET MONTHLY RECORD

Edward R. Martin, director of marketing and statistics, Gas Appliance Manufacturers Association, has announced that August shipments of automatic water heaters were 271,000 units, 30.9% over August, 1954, and above the previous monthly record of 259,600 units in August, 1950.

Shipments for the first eight months of the year reached 1,894,400 units, 24% over the first eight months of 1954.

NEMA WIRE AND CABLE OFFICERS

The Wire and Cable Section of the National Electrical Manufacturers Association elected new officers at its September 26-28 annual meeting held at Skytop, Pa. The section re-elected as its chairman, A. D. R. Fraser, president, Rome Cable Corp., Rome, N. Y. It re-elected as vice chairman, H. B. Bassett, president, The Acme Wire Co., New Haven, Conn.; and elected as second vice chairman, B. F. Ilsey, general manager, Wire and Cable Dept., General Electric Co., Bridgeport, Conn.

AHLMA DRYER DIV. MEETS

Members of the Dryer Div. Committee of the American Home Laundry Manufacturers' Association met on Sept. 5, and heard presentations of the 1956 promotional plans of the Dryer Sub-Committee of Edison Electric Institute and the American Gas Association, it was disclosed by committee chairman, E. J. Sorensen, manager, home laundry sales planning, Hotpoint Co., Chicago.

Frank J. Kitzmiller, Jr., manager, sales promotions for EEI, and John G. Snyder, chairman, Dryer Sub-Committee of the EEI Residential Promotion Committee, made the EEI

to Page 69 →

Ninth National Home Laundry Conference

sponsored by the

American Home Laundry Manufacturers' Association

Palace Hotel, San Francisco, November 2-3, 1955

PROGRAM

Presiding: W. Homer Reeve, President, American Home Laundry Manufacturers' Association, and President, Easy Washing Machine Division of The Murray Corporation of America

WEDNESDAY MORNING

"Choosing Textiles to Make Laundering Easier"
by Julia Kiene, Julia Kiene, Associates, Consultant Service

"The Best Possible Water for Home Laundering"
by John Wood, Calgon, Inc.

"What Soap, What Syndet?"
by Dr. Esther McCabe, Colgate-Palmolive Company

WEDNESDAY LUNCHEON

Presiding: Elisha Gray, Whirlpool-Seeger Corporation

"Management Efficiency in the Home Laundry"
by Dr. Lillian M. Gilbreth, Management Consultant

WEDNESDAY AFTERNOON

"This is the Way We Wash Our Clothes"

"The Mechanics of the Modern Washer"
by Roy Bradt, The Maytag Company

"Preparing to Wash"
by Verna Miller, Frigidaire

"Operating the Washer"
by Helen Kirtland, Hotpoint Co.

"A Special Report on the Use of Radioactive Materials in Home Laundry Research"
by Dr. Florence Ehrenkranz, Professor, Household Equipment, Iowa State College

WEDNESDAY EVENING

Cocktail Party—American Home Laundry Manufacturers' Association

THURSDAY MORNING

Breakfast—The Cleanliness Bureau of the Association of American Soap and Glycerine Producers, Inc.

"This is the Way We Dry Our Clothes"

"The Mechanics of a Modern Automatic Dryer"
by John Christensen, Montgomery Ward & Co.

"The Techniques of Drying"
by Helen Tangen, Hamilton Manufacturing Co.

"This is the Way We Iron Our Clothes"

"The Mechanics of a Modern Automatic Ironer"
by R. M. Gottlieb, Ironrite, Inc.

"Techniques of Using a Modern Ironer"
by Reg. P. James, Speed Queen Corporation

"This is the Way Westerners Wash and Dry and Iron Their Clothes"
by Kay Hillyard, Sunset Magazine

"This is the Way We Teach Home Laundering"
by Dr. Elaine Knowles Weaver, Ohio State University

THURSDAY LUNCHEON

Presiding: John M. Wicht, Blackstone Corporation

"This is the Way We Wear Our Clothes"
A style show directed by Marguerite Fenner, Pacific Gas and Electric Co.; Frances Alexander, Bendix; Nancy Johnson, Westinghouse; Virginia Gregson, Monsanto Chemical Co.

THURSDAY AFTERNOON

Reception and Tour—Sunset Magazine, Menlo Park, Calif.

WEDNESDAY AND THURSDAY—Home Laundry Appliance Exhibit.

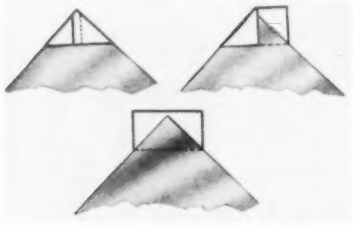
New Supplies and Equipment

K-10. Iron phosphate coating

New A new iron phosphate, capable of producing a miligram coating weight to 175 miligrams per square foot, is now available. This new product, which is known as 79B, can successfully be used in either three or four stage processing units. It contains a detergent to permit its use as a dual purpose product for both cleaning and coating in a three stage unit, but will permit the use of a pre-cleaner for removal of more tenacious soils.

K-11. Corner pads for sheet metal

New These corner-pads are inexpensive pressure-sensitive cushions designed to prevent scratching and gouging of finished



surfaces during shop handling of sheet metal. The manufacturer claims that at a total cost of less than 1½¢ all four corners of metal sheets are eliminated as potential instruments of damage to finished surfaces. They are made of very tough and thick, treated paper stock having high resistance to piercing. Pressure-sensitive adhesive holds them in position during handling operations.

K-12. Automatic press unloader

New A completely redesigned portable press unloader features swiveling base and is portable and adjustable. The unloader is suited for job shop use because it can be moved quickly from press to press and is easily adjusted for different jobs. It is also recommended for use with back-geared presses where the gearing prohibits the mounting of standard automatic loading equipment. The new unloader, known as the Series 3000, has the same jaw, air cylinder and controls as the standard overhead loaders used in the appliance and automotive industries to unload large stampings.

More Information
For more information on new supplies, equipment and literature reviewed here, fill out the order form (Page 82) or write to us on your company stationery.

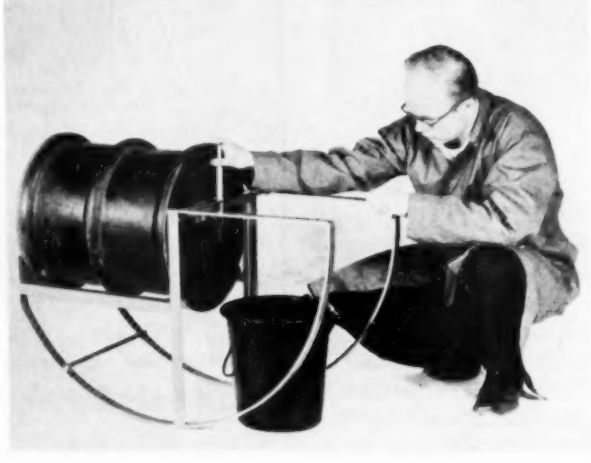
K-14. Variable speed pulley

New A new ¼-hp variable speed pulley is available for limited space applications. It is so designed that it can be mounted with the belt take-off close to the motor and/or reversed, in which case the belt take-off is in an overhung position away from the motor. The new

pulley delivers speed ratios up to 2 to 1. An A section belt is used. Maximum bore is ⅝ in. with keyway.

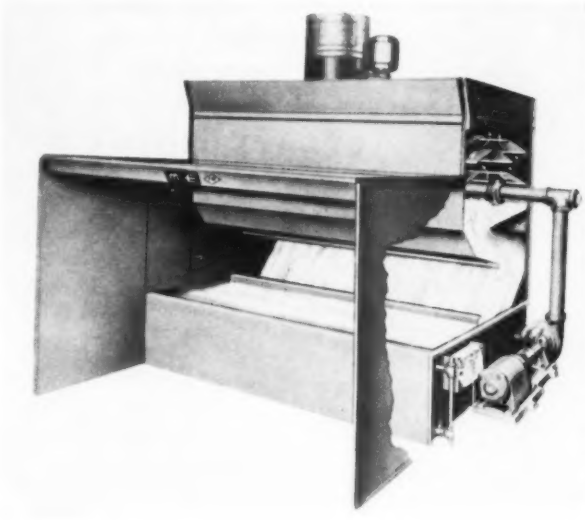
K-13. New tilter for pouring from rubber drums

New New Figure 522 Tilter, especially designed for pouring from the rubber drums used for chemicals and solvents, has been announced. Designed for easy loading, this tilter saves time and effort and, because of controlled pouring, eliminates spillage and waste. It is light weight, portable and requires little floor space. Non-slip clamp securely holds the drum.



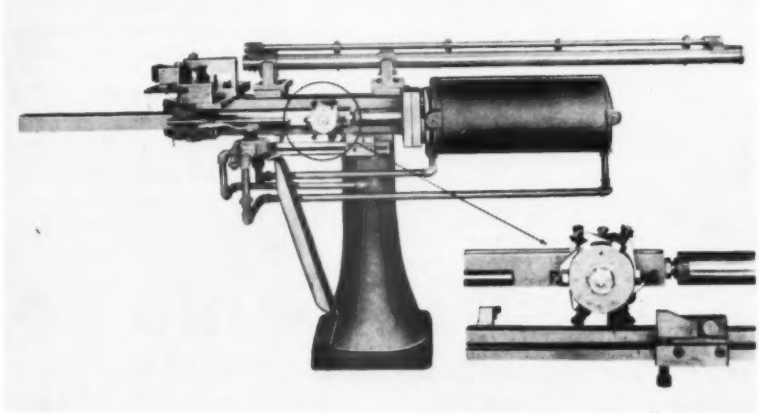
K-15. Semi-elevated water wash spray booth

New A new semi-elevated water wash paint spray booth is designed for production spraying. The wash chamber section is elevated above the dry section of the booth. A heavy down flow of water falling on the back wash curtain creates a filtering point of entry through which all paint particles must attempt passage before reaching the principle wash action process of the water chamber section. Idea of design is that much of the paint residue is knocked down and safely contained within the water reservoir tank. Booths are available in a complete range of sizes or to specifications.



K-16. New automatic turret attachment

New This bender which makes up to 1,000 bends per hour on tubing now has an automatic turret attachment to speed and simplify operation and increase production. The new turret can be set to make a number of different angle bends automatically without any manual manipulation. The new turret has six stations (however, more or less stations can be furnished). Operator sets it the same as a manual turret — but on the return stroke of the rack, a ratchet engages the index finger and advances the turret automatically to the next position. This air powered automatic bending machine handles round tubing, light angles, channels and solid bars.



K-17. Brightener for cyanide

New A new highly concentrated liquid brightener for barrel and still cyanide cadmium plating is now being offered. It is said to be the first cadmium brightener to contain pure chemical compounds of known structure, eliminating breakdown products and organic impurities.

K-18. New level controller

New A new level controller that combines the "greatest practical advantages" of both electronic and air pressure control instruments has been developed. The new device, called "Pneutronic" level control, utilizes the accuracy of electronic capacitance sensing elements to detect minute changes in levels in tanks, drums, process baths, pipelines and other conveyors. Electronic signals are then converted by the Pneutronic control into proportional pneumatic output.

K-19. Anodized coating stripper

New A non-chromic acid containing material for stripping all types of anodic coatings from aluminum parts and racks. Deoxidizing Compound 89 is alkaline in nature and is used in water solution at room temperature for removing anodic coatings by immersion only. Average coatings are removed in a few seconds. The compound contains no ingredients which make waste disposal a problem.

K-20. Pressure sensitive tape

New Tapebinder, a new filament reinforced, pressure sensitive tape, has been announced. The new tape, which combines high tensile strength and strong adhesion qualities, is available in ½", ¾" and 1" roles. Glass filaments impregnated in a rubber base primer give the tape unusual strength, according to the manufacturer. Tape-binder meets specifications of Post Office Dept., Railway Express Agency, etc.

A SUGGESTION TO DESIGN ENGINEERS:

Sometimes it's better and cheaper in pressed steel!

BEFORE: This part, a casting, proved too weak and frequently broke as shown across one end.

AFTER: Nagel-Chase designed and produced this part of pressed steel,—stronger, less costly, no breakage!

When you, as design engineer, are faced with a problem of deciding the best, strongest and most economical way to make a certain part, it might pay you to consult Nagel-Chase. Experts for many years in the design and manufacture of pressed steel products, including many styles of Casters and V-Belt Pulleys used in the appliance industry, Nagel-Chase has frequently been able to produce a pressed steel design that was more satisfactory from both a performance and cost standpoint. The part illustrated is a typical example of how Nagel-Chase produced a part of pressed steel to replace a die casting that was breaking in operation. Consult Nagel-Chase for all your pressed steel needs, and for your caster and V-Belt requirements.

NAGEL-CHASE MANUFACTURING CO.

2811 N. Ashland Ave. Chicago, Illinois

MANUFACTURERS OF NAGEL-CHASE CASTERS AND V-BELT PULLEYS

More NEWS

→ *from Page 65*

presentation. Harold G. Haig, field promotion manager, presented AGA plans.

Other committee members present included: R. H. Smith, Frigidaire Div., General Motors Corp.; E. V. Sala, Bendix Div., Avco Mfg. Corp.; R. H. Sierk, Whirlpool-Seeger Corp.; P. G. Hughes, General Electric Co.; Guenther Baumgart, AHLMA executive director, and R. W. Balcom, associate director.

MAYTAG HOME SERVICE HEAD

Mary Margaret Christianson has been named home service director for The Maytag Co., Newton, Iowa.

SERVEL UPS AULSEBROOK

W. J. Aulsebrook, an employee of Servel, Inc., for 29 years, has been promoted to manager of quality control for the commercial refrigeration division, announced John R. Morrill, vice president and general manager of the division.

NAME DIRECTORS AND OFFICERS OF WHIRLPOOL-SEEGER CORP.

WALTER SEEGER

ELISHA GRAY II

EDWARD CUDMORE

MASON SMITH

JOHN S. HOLL

Included in the agreement of merger of Whirlpool Corp., Seeger Refrigerator Co. and Delaware Appliance Corp. was the designation of the following to serve as directors of Whirlpool-Seeger Corp.: Robert E. Brooker, vice president, Sears, Roebuck & Co.; Frank M. Folsom, president, RCA; Elisha Gray II, president, Whirlpool Corp.; Edward Gudeman, vice president, Sears, Roebuck & Co.; John S. Holl, president, Seeger Refrigerator Co.; Maynard H. Murch, special partner, Fulton, Reid & Co. and president, The Maynard H. Murch Co.; Charles M. Odorizzi, executive vice president, RCA; Walter C. Seeger, chairman of the board, Seeger Refrigerator Co.; and Frederick S. Upton, director, Whirlpool Corp.

The following are officers: Walter G. Seeger, chairman of the board; Elisha Gray II, president; Mason Smith, vice president and treasurer; John S. Holl, vice president, Seeger Div.; and Edward C. Cudmore, secretary.

The following vice presidents were elected at the first board meeting: Donald W. Alexander, John W. Craig, Neil H. Griebenow, John A. Hurley,

to Page 80 →

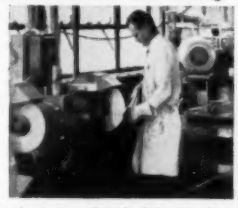
THE FINISHING TOUCH

VERSATILITY OF ALUMINUM FINISHES

by A. H. Kirkpatrick
Stevens Special Project Engineer

A look at the 1955 design engineer's drawing board leaves little doubt that aluminum is past adolescence.

Aluminum responds to any number of finishing processes. Polishing and buffing will produce both satin and mirror bright finishes. Barrel Roto-Finishing will remove minor surface irregularities and improve the finish of small castings and forgings.



Stevens L. V. Experimental Aluminum Buffing Operations.

Many chemical and electro-chemical immersion finishing processes, including anodic etching, electroplating, anodizing, electropolishing and bright dipping add versatility to the finishing of aluminum. In anodizing, dyes can be added for brilliant colored finishes.

Aluminum's coming of age makes the task of producing these aluminum finishes a real job for the project engineer.

Stevens Automatic Equipment for bright dipping of aluminum.

Today, increased production, lowered costs and improved finishes, resulting from automatic, **job-qualified,** finishing installations are available to finishers of aluminum through Frederic B. Stevens, Inc. Stevens experience in the field of aluminum finishing ranges—

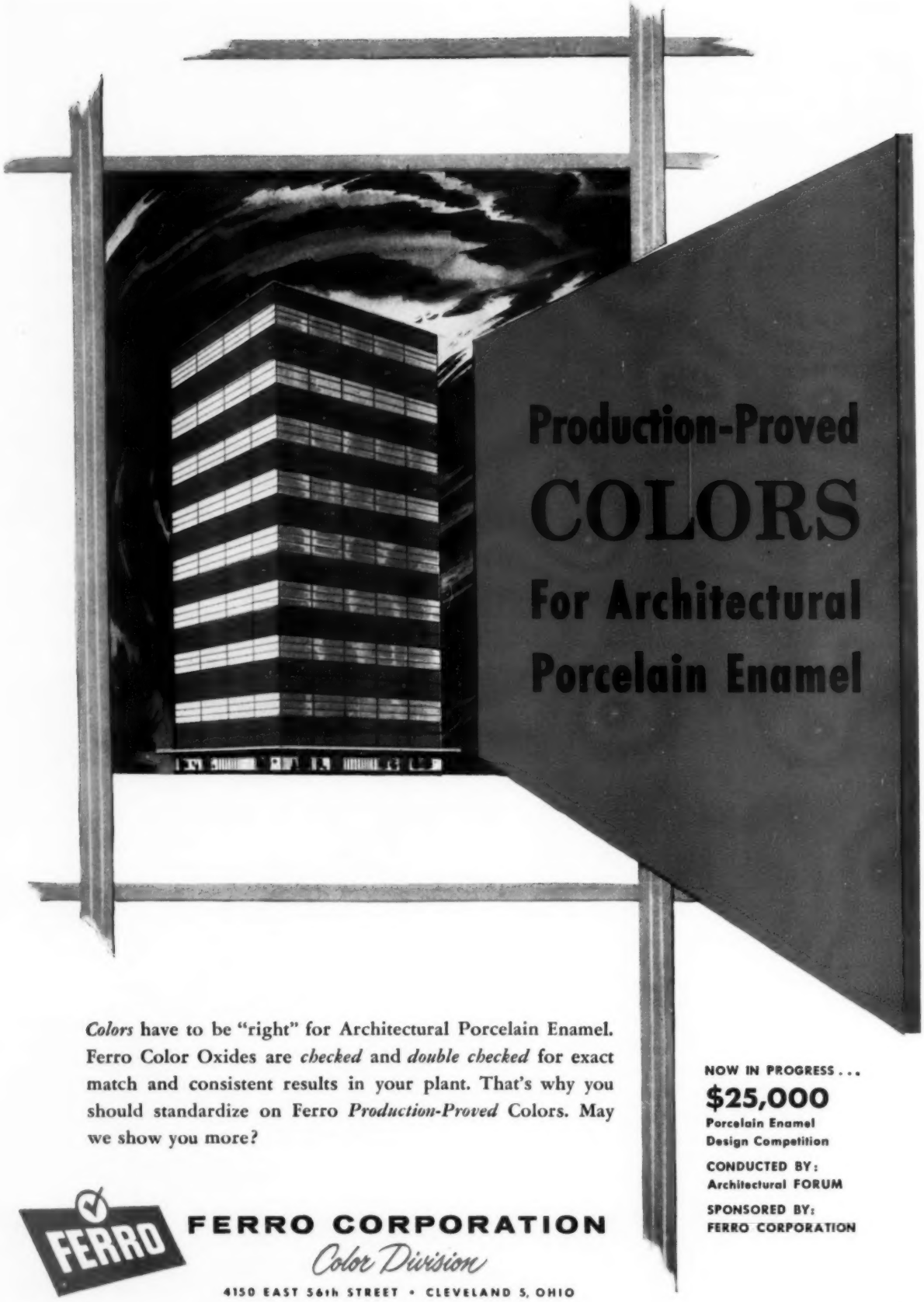
From the anodizing of refrigerator trays to the coloring of tumblers . . .

From the plating of automotive trim to the buffing of light reflectors . . .

From tumble finishing of aircraft assemblies to the alroking of rivets . . .

Stevens can engineer and build complete automatic or still tank installations for any chemical or electro-immersion aluminum finishing process —furnish the supplies and equip your company to do the best job at **lowest** cost. If it's made of aluminum we know how to finish it. Call in your nearest Stevens representative or write direct to:

FREDERIC B. STEVENS
INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

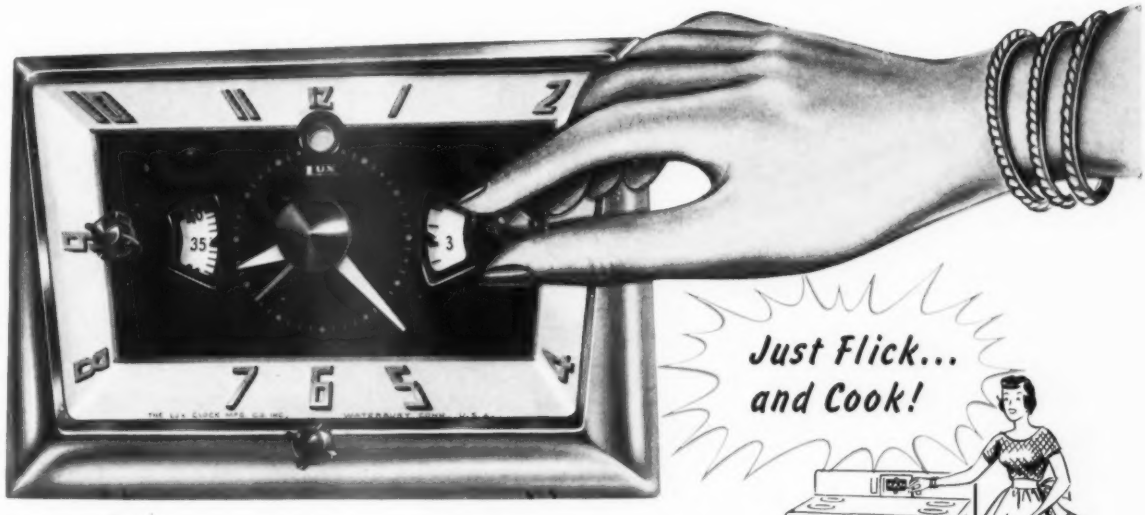


Colors have to be "right" for Architectural Porcelain Enamel. Ferro Color Oxides are *checked* and *double checked* for exact match and consistent results in your plant. That's why you should standardize on Ferro *Production-Proved* Colors. May we show you more?

NOW IN PROGRESS . . .
$25,000
Porcelain Enamel
Design Competition
CONDUCTED BY:
Architectural FORUM
SPONSORED BY:
FERRO CORPORATION

FERRO CORPORATION
Color Division
4150 EAST 56th STREET • CLEVELAND 5, OHIO

LUX *THE* TIMER FOR NEXT YEAR'S RANGES!



EXCLUSIVE **ONE KNOB TIMING.** The type of oven control housewives have wanted for years. *Single knob* setting starts oven immediately . . . shuts it off automatically. No time-calculating, no dual control fussing. Only LUX offers this simple one knob control for a range timer's most-used setting.

Plus . . . FULLY AUTOMATIC CONTROL
Plus . . . MINUTE MINDER TOP-SIDE CONTROL
Plus . . . NEW SYNCHRONOUS MOTOR REQUIRING NO LUBRICATION
Plus . . . SNAP-IN MOUNT
Plus . . . 3 DIMENSIONAL STYLING

See for yourself . . . have a personal pre-view. Write, wire or phone.

DEPARTMENT F

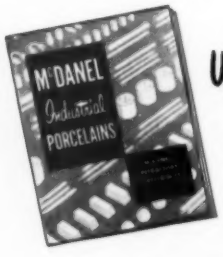
THE LUX CLOCK MFG. CO., INC.
WATERBURY 20, CONNECTICUT

LUX Time
YOUR TIME-REMINDER LINE

McDANEL

BRINGS YOU A *New* CERAMIC LABORATORY MILL JAR!

● Here is the new, 1-gallon McDanel Laboratory Mill Jar (PRJ-1G). It has been designed with recessed bronze hardware to prevent catching or holding on roller-type mills. This new McDanel Jar has a smooth, long-wearing, high-grade ceramic body . . . can be easily and quickly cleaned, inside and out. The close-fitting cover rests on a soft rubber gasket and can be tightened by hand without cracking or damaging the cover. There is no leakage. Neoprene gaskets should be used for oil base grinding. Investigate the McDanel PRJ-1G Laboratory Mill Jar now.



Write for Your McDanel Industrial Ceramic Catalog TODAY! Gives complete information on Balls, Mill Lining, Mill Jars, Jar Mills, Special Ceramics, etc.

McDANEL *Industrial* PORCELAINS

McDANEL

REFRACTORY PORCELAIN COMPANY

BEAVER FALLS · PENNSYLVANIA

finishfoto

At the PEI Forum banquet table are, left to right, Roger Fellows, Century Vitreous; Dr. Ralph Cook, University of Illinois; Prof. J. L. Carruthers, Ohio State University; Clayton Rand, Dixie Press; E. E. Howe, Chicago Vitreous; Glenn Hutt, Ferro; Dean H. A. Bolz, Ohio State University; Dr. G. H. Spencer-Strong, Pemco; Dr. A. L. Friedberg, University of Illinois, and John Oliver, Porcelain Enamel Institute.

Brief resumes of P. E. I. Forum papers

from the 17th Annual Shop Practice Forum held at Ohio State University, Columbus, Ohio

A look ahead for porcelain enamel

A. S. Ault, Chicago Vitreous Corporation

In any prognostications for the future of porcelain enamel we must consider production and sales.

The demand for goods based on the present trends of population growth will be up 30 per cent by 1965 and 50 per cent by 1975.

The responsibility of producing a quality product to meet the demands lies with product engineers and product designers.

In looking ahead it appears that there will be continued expansion of plant facilities to meet the growing demand of the home appliance industry.

Automation will be the key word in the next decade. Automatic pickling, flow coating, automatic spraying and dipping will become more general in use.

One-fire finish and low temperature enamels (1300°F.) may be a reality in the not too distant future.

Coating thickness gage for non-magnetic and magnetic metals

Fred H. Sawada, Hotpoint Co.

The development of an instrument has been made for the non-destructive measurement of coating thickness on non-magnetic as well as magnetic alloys.

The principle of this gage is based on the net change of inductance due to eddy current shielding of two equally balanced coils in the impedance arm of a high frequency inductance bridge. The ease of calibration and rapid method of measuring coating thickness are some of the advantages of the instrument. The accuracy of the gage is approximately $\pm$ 0.2 mil for a range of 1 to 5 mils and $\pm$ 1.0 mil at 25 mils of coating thickness. The maximum range for coating thickness measurements is 50 mils.

Mill additions for porcelain enamel on aluminum

Grant E. Miller, Ferro Corporation

For some time the mill additions which have been used with the aluminum enamel frits have consisted of a combination of frit, water, titanium dioxide, coloring agent and mill addition agent. The mill addition agent has been in a liquid form with the consistency similar to liquid sodium silicate, making it very sticky and difficult to use. With only one mill addition, there was little choice as to the direction to go to change the working properties of the enamel slip. The development of a dry mill addition consisting of a combination of agents has been completed.

Of the various materials tried, only two dry materials seemed to have the desired properties. These materials were sodium meta silicate and boric acid. Best proportions of the material are from 60 per cent sodium meta silicate, 40 per cent boric acid ratio to a 40 per cent sodium meta silicate, 60 per cent boric acid ratio. A 50-50 ratio gives the best combination of gloss and surface. Higher gloss can be obtained with 60 per cent sodium meta silicate, and higher set with 60 per cent boric acid. A 6 per cent addition is recommended for normal use.

A thorough investigation was made comparing the two different mill additions in a standard aluminum enamel frit. No apparent differences could be seen in such properties as color stability, reflectance, aging, adherence or surface.

Visually, the gloss using the dry mill addition agent is appreciably better. The working properties, set and specific gravity can be adjusted much more rapidly.

Physical tests, including boiling acid, boiling alkali and abrasion tests, show the dry mill addition agent to have advantages over the wet agent.

→

Plant experiences with porcelain enamel on aluminum

DONALD S. PRATT, Ingram-Richardson Mfg. Co.

ALUMINUM is a soft metal and as such must be handled with care. It must be lifted and laid down, not slid and dropped. Deep scratches must be ground coated since they are not etched out in the cleaning operation.

Proper loading of aluminum is required in the pickling baskets. In the final rinse, all traces of caustic chrome solution must be removed to prevent it from bleeding through and affecting the color or causing spalling of the enamel.

It is necessary to give welds a sandblasting before the chemical cleaning to insure bond. The use of a 4043 welding rod with an inert gas type of welding system has produced best results.

The application of enamel on aluminum cannot be too thick since too heavy an application will cause the enamel to crack or peel off. Aging of enamel also presents problems with some enamels going sour in two weeks while others may be used successfully after five months of aging.

Uniformity of temperature throughout the furnace is necessary to obtain uniformity in color. Careful handling of the ware at the furnace is also required. Greasy finger marks and bending of the ware must be prevented. Warpage of sheets is controlled by keeping the coating balanced.

Cold straightening is employed to straighten ware which deformed in the final firing.

Color stability is controlled by careful control of fineness, coating thickness, color of ground coat, firing time and temperature.

Sandblasting or soaking in 20 per cent nitric acid solution are satisfactory methods of de-enameling.

Defining the problem of one-coat processing

G. H. SPENCER-STRONG, Pemco Corporation

A ONE-COAT enamel system for general use must combine all of the end use attributes now obtained in a multiple-coat system. In order to properly define the problem of one-coat processing, it would be desirable to first enumerate the optimum requirements for such a system:

1. The end product should embody all the physical, chemical, optical and esthetic qualities obtainable in a conventional ground coat, cover coat process.
2. The system should provide adequate bond and/or freedom from defects normally associated with inadequate bond.
3. It should be resistant to defects due to minor imperfections in the base metal and to faults due to processing variations.
4. It should be applicable to any type of base metal over which a ground coat can, at present, be applied — or, if a system embodies a special metal, that metal should be in adequate supply to meet the needs of the industry and be priced so that the process will be competitive with the conventional two-coat system.
5. The system should be suitable for use with available modern cover coat enamels all types.
6. The system should work with commercial ware in commercial processing equipment under production conditions.

A study of the requirements indicates that there are three general possible means of solution:

1. By securing the required bond and other characteristics by means of enamel formulation and/or mill additions.
2. By means of alterations to the base metal.
3. By an approach based on special processing of the metal surface, preferably after fabrication prior to enameling.

The pre-enamel one-coat processing system

ROBERT C. GIBSON, Parker Rust Proof Company

A PHOSPHATE coating process was developed on the premise that elimination of the ground coat from the porcelain enameling operation could best be accomplished by a suitable treatment of the metal surface prior to application of porcelain enamel.

The phosphate coating process consists of cleaning the metal surface of enameling iron or cold rolled steel, chemically converting the surface to a phosphate coating and then prefiring it to form an oxide layer. The phosphate coating controls oxidation during prefire, producing oxides with the proper physical and chemical properties to directly accept a finish coat of porcelain enamel.

Cleaning of the metal surface is a prerequisite and may be accomplished by the use of alkali cleaners.

The recommended pickle is a phosphoric acid type pickle formulated to remove rust and scale and to minimize flash rusting of the cleaned metal surface and condition it to receive the phosphate coating.

The coating produces an iron phosphate coating by reacting chemically with the metal surface.

Water rinses are used after the alkali cleaner, pickling and coating stages. A deionized water rinse is used as the last step of the chemical treatment to remove soluble contaminants which interfere with subsequent oxide formation.

The last step in the process is the prefire of the thin phosphate coating to form a heavier oxide layer of approximately one mil thickness.

Commercial finish coat porcelain enamels can be applied by dipping or spraying. Coloring oxides may be used in the usual manner.

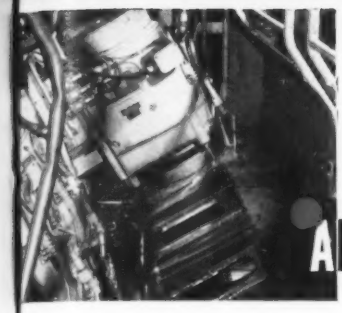
Shop experience with the phosphate coating — finish coat enameling

W. H. PFEIFFER, Frigidaire Division

FOLLOWING a laboratory investigation of the phosphate coating process for the direct application of finish coat porcelain enamel, further work was undertaken in factory equipment.

The first stage of the further investigation was by improvised "hand" methods using available factory equipment.

It was found that thorough cleaning was an absolute necessity. The use of



AMAZING "AUTOMATED" DRILL-GRINDER TEAM

DOES THE JOB 22 TIMES FASTER

Machining mounting surfaces on the underside of huge tank hulls required ten separate horizontal boring mill setups. Handling, positioning and working on the heavy, unwieldy hulls created a serious bottleneck in production.

Relying on Wean Equipment's reputation as a leading designer and builder of special machinery for industry this concern gave Wean the green light. Wean Equipment engineers set to work and came up with the first completely automatic adaption of a bank of grinding heads to work on an angular surface.

The machine grinds all surfaces simultaneously with unmatched precision, and completes its job 22 times faster than the old method. According to company officials the machine paid for itself in short order by increasing production, eliminating reworking created by human error, and releasing boring mills to other production work. Result: A second machine to perform a difficult drilling operation on the same hull was ordered from Wean. These are typical examples of Wean Equipment's ability to develop and build practical automation equipment.

If you have a production problem — why not call on Wean Equipment and get results.

Wean

EQUIPMENT CORPORATION

CLEVELAND, OHIO

H. W. McMahan
Texlite, Inc.

Howard Holton
Erie Ceramic Arts

John Clark
Foote Mineral

W. F. Rode
Enamel Products

H. W. Drake
Porcelain Steel

A. J. Ell
Enamel Produ

G. H. Thomas
General Electric

John S. Wicks
General Electric

Ernest Bell
Parker Rust Proof

T. J. Snodgrass
General Electric

Charles Cook
Whirlpool-Seeger

Cliff Heat
Westinghou

finishfotos

a candid photo record of typical PEI Forum registrants

Glenn Ringelberg
Challenge Stamping

R. B. Taylor
Westinghouse

Earl Smithberger
American Kitchens

Arthur R. Dukes
Servel

C. T. Mueller
U. S. Steel

R. S. Sheld
Whirlpool-Se

A. G. Eubanks
National Bureau of Standards

Frank Wainscott
Tappan Stove

John Cordes
Lithium Corp.

J. T. Van Hook
Bulwark Corp.

Homi Kapadia
Kawneer Co.

M. Haselho
Magic Che

R. E. Parkinson
Kawneer Co.

Archie Farr
O. Hommel

Kenneth Erwin
General Electric

G. Z. Velasco
Inter-Island Gas Service

H. W. Drake
Porcelain Steel

J. Tustin
Rheem

(FORUM) → *from Page 74*

infra-red lamps instead of a forced air dryer was necessary for satisfactory results. A spray rinse with demineralized water as the final step in the chemical treatment was necessary to remove the last traces of chemical residue. The ware was handled with clean cotton gloves to prevent harmful fingerprints.

Prefiring of ware could not be accomplished at the same time that enamel was being fired. A waiting period of one-half hour after firing enamel was necessary to prevent blistering of the oxide.

After the chemical treatment was brought under control, a study of the prefiring times and temperatures was essential in order to produce a blister-free adherent oxide coating. Based on torsion and adherence test data, the temperature of 1425°F. was adopted for prefiring.

Only the titanium-type cover coat enamels have been tried. Superior results with respect to surface was obtained by the use of a 50-50 blend of two frits which have individual firing temperatures of about 1430°F. and 1500°F. when fired over ground coat. This blend was fired at 1480°F. and 16 ft. per minute in a 50-ft. hot zone. The firing temperature is about 30°F. higher and the time somewhat longer as compared to firing over ground coat.

Enamels have been applied by dipping and spraying. A thickness of 4-5 mils is required for satisfactory covering with white titanium enamels. Metal finished areas and spot welds were covered successfully.

Parts which were unsatisfactory after chemical treatment were reprocessed directly. Parts which were unsatisfactory after prefiring were reprocessed by stripping the oxide in phosphoric or sulphuric acids and given the chemical treatment. Parts exhibiting ordinary defects after enameling were recoated with good success.

The parts processed were mostly hydrator pans, lining top panels and drip disposal pans for refrigerator interiors. Some small numbers of exterior parts such as washer tops, washer lids and small range tops were included.

The conditions were adverse inasmuch as considerable contamination and handling damage was inherent to improvised operations and the enameling technique was not well developed.

Between 64 and 96.9 per cent of the interior and exterior parts which were fabricated from enameling iron and cold rolled rim steel and enameled were satisfactory in one coat. Upon reoperating some of the rejected parts, the total yield was better than 98 per cent.

Further investigation has been in progress in a new pilot plant under more favorable conditions.

Experiences with dry drawing compounds

RICHARD F. ROY, Dixon Chemical Company

DRY compounds have a greater film strength than wet compounds, enabling the use of a thinner film. Their easy removal makes them especially adaptable in the porcelain enameling field.

There are some disadvantages to the use of this type of material because of the cost of installing tanks for cleaning, coating and drying and the man-hours required to rack the blanks before and after coating. Hardness of water must also be considered since organic materials are present in the dry drawing compound. Proper solution of the dry drawing material can be insured by the addition of chemicals which retard the action on the organic materials or by softening the water with an ion exchange unit.

Blanks can be coated before fabrication by dipping, spraying and rolling. The process of dipping and rolling is the most satisfactory where rolling has a tendency to squeege the material from the blank. Application of the dry drawing compound by dipping is the most commonly used; however, machines designed for spraying are coming into prominence.

In the enameling field, dry drawing compounds are used very extensively in the manufacture of bathtubs, sinks, washing machine tubs and baskets, kitchenware etc.

Fundamentals of cathodic protection

FORREST W. NELSON, A. O. Smith Corp.

TWO types of cathodic corrosion protection have been used commercially. One is protection obtained from an externally applied voltage . . . a non-sacrificial anode is used in this instance. A second type of cathodic protection, which is usually the most economical, is that derived from naturally induced voltages due to the potential difference of various metals. In the latter type of cathodic protection, the principle is that when two metals are electrically connected and current can flow through an electrolyte, the metal highest in the electromotive series is corroded.

Magnesium is the most efficient and widely used sacrificial anode when aqueous environments are considered.

The most important factors to consider for the effectiveness of the magnesium anode are:

1. The surface ratio of the anode to the cathode must be high.
2. Anode to cathode distance — increased effectiveness of the anode is obtained as the distance to the cathode is decreased.
3. Conductivity of electrolyte — the protective current is low and protection at a minimum if the resistance of the electrolyte is high.
4. Electrical shielding — in the presence of noble metals, the anode will have a greater potential to these noble areas and may neglect any nearby exposed steel.
5. Anode impurities — significant amounts of impurities will result in the development of local cells currents within the magnesium anode which will corrode the anode and shorten its longevity.

Porcelain enamels are an ideal coating material for use with cathodic protection since they are electrically inert. With proper design and adequate coating, the magnesium anode has a life expectancy of 8 to 15 years in all types of water.

Despite the use of cathodic corrosion, enameling precautions cannot be disregarded. Some of the precautions necessary in the manufacture of cathodically protected porcelain enamel tanks are as follows:

1. Porcelain enamel coverage should be nearly 100 per cent. Not more than 2 square inches of bare metal should be permitted.
2. Porcelain enamel should be formulated specifically to withstand hot water environments. Acid or alkali resistance does not necessarily imply water resistance.
3. Noble metal accessories should be eliminated or masked from anode current flow.
4. The magnesium should be of high purity.
5. The anode should be as large as possible so as to adequately protect all portions of the heater.

more on Page 98 →

The G-E refrigerator has come a long way since 1933

... and so has Du Pont DULUX® enamel!

GENERAL ELECTRIC'S famous "monitor top" refrigerator delighted homemakers with its efficiency and good looks back in 1933. But finding *new ways* to make kitchens more beautiful, more pleasant to be in . . . *new ways* to give America's women more and more leisure . . . has been among the basic aims of General Electric over the years. That's why today's General Electric refrigerator, with its new revolving shelves, is a marvel of streamlined efficiency and compactness that the 1933 housewife could not even dream of.

And so it is with America's leading home appliance finish—Du Pont DULUX Enamel. Constant research over the years by Du Pont chemists has resulted in a finish with rugged resistance to chipping, cracking, scratching and staining. *Now* DULUX is easier to clean . . . keeps its glistening white beauty longer than ever before! That's why the DULUX of today meets the most exacting requirements of *today's* topflight appliance manufacturers. E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DU PONT
REG. U.S. PAT. OFF.

"DULUX" ENAMEL

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

America's leading home appliance finish

. . . has helped sell over 36,000,000 refrigerators!

Federation of paint and varnish production clubs annual meeting

CLYDE L. SMITH, president of Vi-Cly Industries, Inc., Compton, Calif., was elected president of the Federation of Paint and Varnish Production Clubs for the year 1955-1956 at the Federation's Annual Meeting, October 3-5 in the Hotel Statler, New York City.

Other officers elected for 1955-1956 were Milton A. Glaser, president-elect; H. G. Sholl, treasurer; and C. Homer Flynn, executive secretary.

Among the speakers at the meeting were Dr. C. F. Kettering, research consultant to the Research Laboratories Division of General Motors Corporation, who discussed "Why the Grass is Green"; Joseph F. Battley, president of the National Paint, Varnish and Lacquer Association, who emphasized the need to keep changing products, refine them, add to their durability, versatility and uses; and Dr. Edward G. Bobalek, Case Institute of Technology, who discussed "Applications of Electron Microscopy in Paint Formulation."

Paul O. Blackmore, Interchemical Corporation, reported on the 1955 FATIPEC and OOCA meetings.

Corrosion panel

Dr. Joseph W. Tomecko, chairman of the Federation Corrosion Committee, reported on studies that are underway. One project is on "Gauges for the Film Thickness Measurement of Paint on Hot Rolled Steel". A project to measure film thickness of paint will use the information resulting from this study.

A panel discussion on corrosion included G. H. Westcott, E. I. du Pont de Nemours & Company, who spoke on the properties of paints made for prevention of corrosion, and G. G. Schurr, The Sherwin-Williams Company, who spoke on the formulation of anti-corrosive primers with regard to vehicle, pigment and PVC.

CLYDE SMITH

Schurr stated that philosophy of metal primer formulation is based on the fact that corrosion is an electrochemical reaction, influenced by the environment of the metal. If water and oxygen could be kept away from metal, corrosion could be prevented. But paint films at 4 mils thickness permit passage of water and oxygen, so it is the general opinion that the paint film, as a barrier to electrical current and by being impermeable to ions, prevents corrosion.

The three factors in the prevention of corrosion are:

1. that the film act as a barrier to ions,
2. that the natural iron oxide film metal be increased, since ions enter because electrolyte forms in the film, and
3. the current of the flow of electrons is countered by cathodic protection.

Pigment to binder ratio and surface treatment are important, too. Although higher ratios of pigment let ions through the film, the gloss given by lower ratios blisters. It was concluded that the best ratio is slightly on the low side.

H. G. SHOLL

HOMER FLYNN

MILTON A. GLASER

NEWS → *from Page 69*

John W. Krueger, Robert M. Mitchell and Robert S. Upton.

The board also appointed the following additional officers: Walter Holt, assistant treasurer; Clarence W. Moberg, assistant secretary and assistant treasurer; and Bartley K. Moore, assistant secretary.

AHLMA BOARD CHANGES

Two changes in the board of directors of the American Home Laundry Manufacturers' Association have been announced by W. Homer Reeve, president.

B. J. Hank, president, Conlon-Moore Corp., Chicago, has been advanced to treasurer, succeeding Howell G. Evans, formerly senior vice president, Hamilton Mfg. Co.

Howard Leisey, works manager, Beam Mfg. Co., Webster City, Ia., has been appointed director at large, replacing George P. Castner, formerly general manager for Beam.

Expand enameling volume with Du Pont Porcelain Enamel for Aluminum

This protective and decorative Du Pont finish for aluminum offers many important features and advantages.

Lifetime finishes of Du Pont porcelain enamel resist abrasion, thermal shock, impact and flexing . . . can be sawed, sheared, drilled and punched without spalling.

And these rugged coatings add rigidity to aluminum sheet, allowing you to use lighter gauge aluminum and cut packaging and shipping costs.

FOR MORE INFORMATION on how you can expand your enameling volume and increase customer satisfaction by adding aluminum enamels to your line of finishing service, mail the coupon below.

DU PONT
VITREOUS ENAMEL
FOR ALUMINUM
DU PONT
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

MAIL THIS COUPON TODAY

E. I. du Pont de Nemours & Co. (Inc.) F-11
Electrochemicals Dept., Wilmington 98, Del.

☐ Please send me a copy of your free booklet on Du Pont Porcelain Enamel for Aluminum.

*Name*_____ *Position*_____
*Firm*_____
*Address*_____
*City*_____ *State*_____

ARMOUR FOUNDATION DEVELOPS 'FIBER METALLURGY'

A new metallurgical technique which may lead to an entirely new use of metals has been developed at Armour Research Foundation of Ill. Institute of Technology, Chicago.

The technique — known as fiber metallurgy — involves the use of a bulk starting form of metal heretofore not used — short metal fibers, according to Dr. Arthur G. Metcalfe, senior metallurgist.

U N DELEGATE TO ADDRESS NEMA ANNUAL MEETING

Brig. Gen. Carlos P. Romulo, chairman of the Philippine delegation to the United Nations, will address members attending the 29th Annual Meeting of the National Electrical Manufacturers Association in the Traymore Hotel, Atlantic City, at the general luncheon on November 15.

PLAN BORG-WARNER RESEARCH CENTER

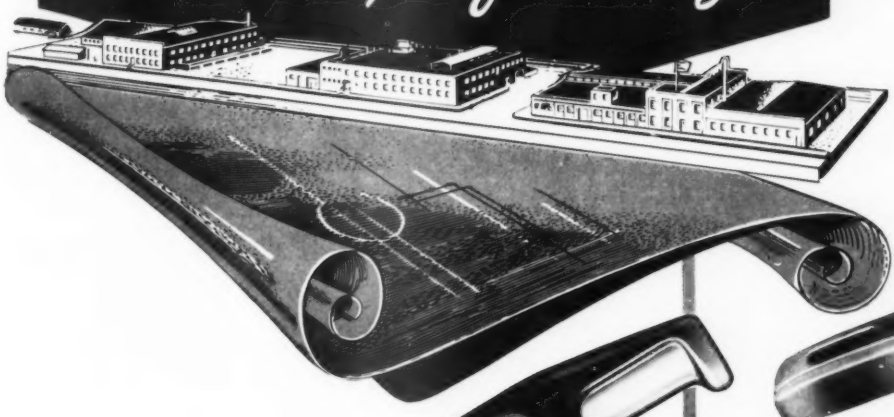
Plans for the construction in Des Plaines, Ill., (Chicago suburb) of a multi-million-dollar Borg-Warner Research Center have been announced by Roy C. Ingersoll, president, Borg-Warner Corp., Chicago.

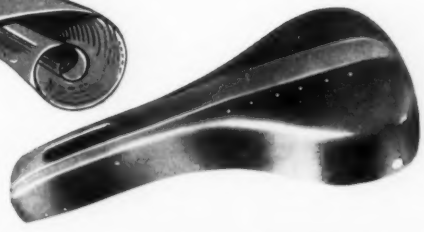
The new laboratory will contain facilities for metallurgical, electronic, electrical, chemical, acoustical, hydraulic, applied mechanical, physics and nuclear research.

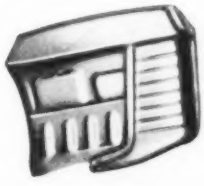
PLUMBING ASSN. SECY. RETIRES

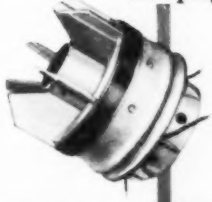
Iler J. Fairchild has retired as secretary of the Enameled Cast Iron Plumbing Fixtures Association, the predecessor of the Plumbing Fixture Manufacturers Association. He is succeeded by Wm. E. Kramer.

LET'S TAKE A LOOK
at the company back of...









NEW

MONARCH QUALITY STAMPINGS

45 years of engineering and production experience—The skills and equipment for manufacturing better dies, jigs, fixtures, and stampings large or small, deep or shallow drawn—

The ability to tool efficiently for long runs and economical production—Three thoroughly modern plants staffed and equipped to produce, with utmost accuracy, everything from single stampings to complete assemblies—

OUR SERVICES ARE COMPLETE . . . from blueprint to shipping carton

WHEN YOU NEED STAMPINGS THINK OF MONARCH

NEW MONARCH MACHINE & STAMPING CO.

MONARCH QUALITY

406 S. W. NINTH STREET DES MOINES 9, IOWA

New Industrial Literature

210. Table-type blast cleaning machine

New A new bulletin describing a table-type airless blast cleaning machine has just been published. It is devoted to a machine particularly designed for handling a wide range of work, like that found in job shops. Suggested applications include preparation of metallic parts for galvanizing, rubberizing, glass coating, painting, enameling and plasticizing. A distinctive part of the machine is the plain circular work table, available in 6′, 8′, 10′ or 12′ diameters. It is positioned so that half is inside the blasting zone and half is outside.

---

211. Wirewound resistors

New Catalog data bulletin on Type MW wire wound resistors. Comprehensive data on construction, tolerance, power rating, marking, humidity, adaptability, frequency characteristics, etc.—detailed charts and graphs—4 pages.

---

212. Bulletin on vacuum melted alloys

New A new technical bulletin on vacuum melted metals and alloys which includes both general information and technical data was issued recently. The 23-page publication covers the effects of vacuum melting on properties of various metallic materials, benefits of the process to the user of such metals and fabricating and machining recommendations.

---

213. Titanium progress report

New An illustrated booklet giving up-to-date data on the properties of titanium (metal) and discussing methods of fabricating the lightweight metal has been issued. The booklet includes tables giving the mechanical properties of both alloyed and unalloyed grades of the metal and comparative properties of titanium and other pure metals. It discusses methods of forging, annealing, rolling and descaling and pickling titanium sponge in primary fabrication; and sheet forming, machining, grinding, sawing and joining of titanium in secondary fabrication.

---

214. Finishing of aluminum and zinc base die castings

New "Successful Finishing of Aluminum and Zinc Base Die Castings' describes finishing recommendations for many die cast items ranging from automotive door handles to camera range finders.

215. Electrostatic finishing system

New An 8-page illustrated booklet describes an automatic electrostatic finishing system. Included are details on what it is — a process for spraying paints, varnishes, enamels, vitreous enamels and other coating materials on products capable of conducting an electrical charge —how it works and why it is said to be more efficient and economical— saving labor and production costs.

---

216. Steel shelving

New Efficient storage with steel shelving is described in a new 48-page illustrated catalog. It is designed to assist users in the selection of the proper shelving items to take care of standard and special requirements and covers steel storage shelving, shop equipment and steel storage cabinets.

---

217. 2 new spray washer cleaning compounds

New Literature is available on two new mechanical spray washing compounds for cleaning ferrous and non-ferrous metals. #58, for ferrous metals, has sequestering agents built into the product to overcome hard water conditions and assist in removing hard water scale without foaming problem commonly encountered. #59 is designed for cleaning non-ferrous metals such as brass and aluminum. It is a highly buffered product which eliminates etching and reduces tarnish.

---

218. Wet type dust collector

New A wet dust collector that separates dust from the air by centrifugal action while it also wets and traps dust by water is described and illustrated in a new bulletin. The Type "W" air tumbler consists of a stationary screw within a horizontal pear-shaped barrel.

FINISH
York Street at Park Avenue
Elmhurst, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No._____ **No.**_____ **No.**_____ **No.**_____

No._____ **No.**_____ **No.**_____ **No.**_____

Name _____ **Title** _____

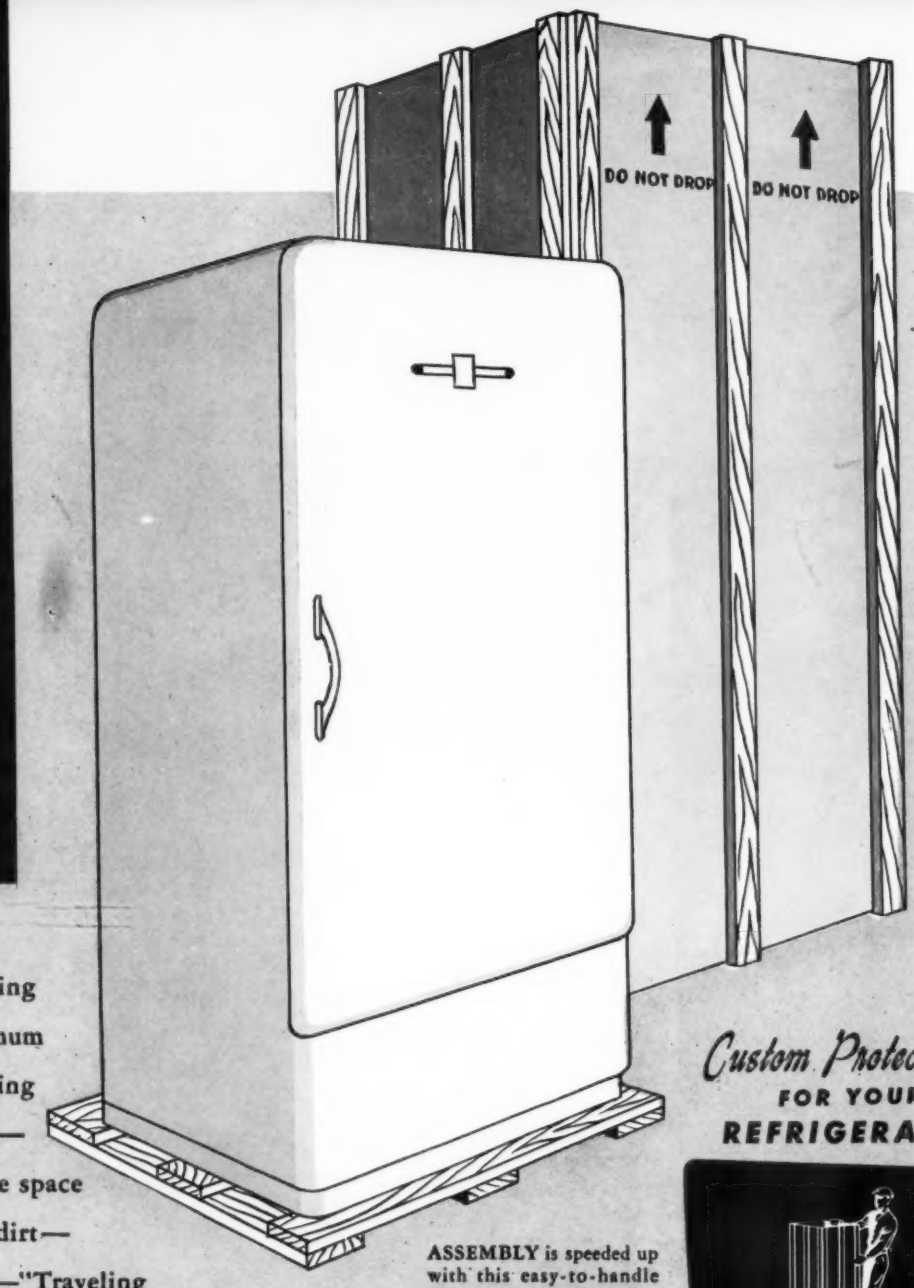
Company _____

Company Address _____

City _____ **Zone**____ **State** _____

November 1955
safe transit
FROM STREETCAR LINE TO FINAL CUSTOMER

WATKINS has the container for your shipping problem

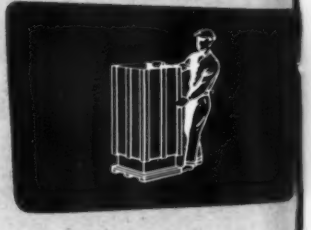


Watkins Containers provide—stacking strength—ease of assembly—minimum shipping weight, thus reduced shipping costs—smooth staple-free interiors—easy handling—minimum of storage space needed—protection from dust and dirt—resistance to "weaving" and shock—"Traveling Billboard" feature for product identification and advertising.

For home appliances, for *all* types of finished products, the Watkins Container is your best insurance for safe delivery. Ship your carefully manufactured products safely and economically—ship them the "Watkins Way."

ASSEMBLY is speeded up with this easy-to-handle container. The assembly crews are all for packing the Watkins Way.

Custom Protection FOR YOUR REFRIGERATOR



these companies build WATKINS containers

Cozier Container Corp.	446 East 131st Street, Cleveland, Ohio
Crate-Rite Mfg. Co.	1015 Orient Street, Oakland 7, California
Dura-Crates, Inc.	940 East Michigan Street, Indianapolis, Indiana
General Box Co.	1825 Miner St. Des Plaines, Illinois and 16th and Maple Sts., Louisville, Kentucky
Hemb & Martin Mfg. Co.	P. O. Box 108, Murfreesboro, Tennessee
Illinois Box & Crate Co.	811 Center Street, Plainfield, Illinois
Kieckhefer Box & Lumber Co.	1711 West Canal Street, Milwaukee, 3 Wis.
Lane Container Corp.	10212 Denton Road, Dallas, Texas
Lewisburg Container Co.	243 Singer Street, Lewisburg, Ohio
Livingston Wood Manufacturing, Ltd.	Tillsonburg, Ontario, Canada
Love Mfg., Inc.	608 South Commerce Street, Wichita, Kansas
Pennsylvania Box & Lumber Co.	Terwood Road, Willow Grove, Pa.
Utility Crate Corporation	1985 E. 16th Street ,Los Angeles 21, Calif.

—an inquiry to any of these companies will get prompt attention

The · WATKINS CONTAINER · Manufacturers

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and metal products manufacturing field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

CONTENTS

CERTIFIED LABORATORIES AND NST EDUCATION ST-3

APPLIANCE HANDLING ATTACHMENT ST-3

SAFE TRANSIT NEWS (monthly report) ST-5

EMBLEM OF A NEW AGE IN SHIPPING ST-8

SHIPPING NEWS ST-13

COPYRIGHT © 1955
DANA CHASE PUBLICATIONS
York St. at Park Ave.
Elmhurst, Illinois
PRINTED IN U.S.A.

Certified laboratories — *participating in the National Safe Transit program are assisting with the NST educational program in many instances by sponsoring meetings for product manufacturers' personnel. One of the earlier meetings is represented by this photograph showing Charles E. Frohman, president of Hinde & Dauch Paper Company, addressing the North Central Ohio Purchasing Agents Association at Sandusky, Ohio.*

Handling crated appliances — *has been simplified through the application of a pair of spring-applied clamps as an attachment for lift trucks. The clamps are made so that the truck can pick up two crated refrigerators and stack them with precision more than 20 feet high. A side-shifting mechanism moves the load four inches each way. Hydraulic pressure is used to adjust the clamps to accommodate different sized crates and spring tension is then applied to hold them while they are being handled in the warehouse.*

HERE'S THE MODERN WAY TO PACKAGE STOVES... CORRUGATED ALL THE WAY!

NEW International shipping container for Sears Roebuck's 30-inch KENMORE range eliminates wood skids... saves ⅓ packing time!

Cutaway container with top lifted up and back, shows the all corrugated packaging which assures safe transit.

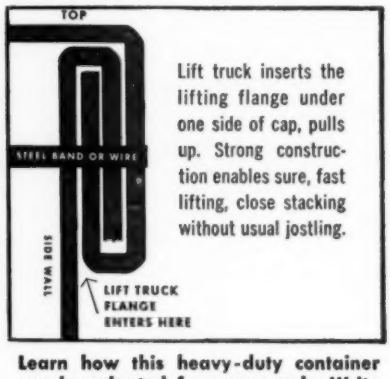
1. No bolts, no screws, no wood; the all corrugated skids are fastened to the container bottom, which is put in position at the beginning of the assembly line.

2. The stoves travel the entire length of the line on the corrugated base. The all corrugated construction eliminates occupational hazards.

3. Before exterior panels are assembled a special corrugated center guide (not shown) is raised to hold the range firmly in place.

4. The all corrugated container assures factory fresh arrival and eliminates the need for re-polishing, re-cleaning.

5. International's tube and cap design enables the lift-truck to handle more than one range at a time. (See design at right.)



Lift truck inserts the lifting flange under one side of cap, pulls up. Strong construction enables sure, fast lifting, close stacking without usual jostling.

Learn how this heavy-duty container can be adapted for your needs. Write us for further information.

International Paper company
CONTAINER DIVISION
220 East 42nd Street, New York 17, N. Y.

SAFE TRANSIT NEWS

NATIONAL SAFE TRANSIT COMMITTEE

Associations Building, 1145 - 19th St., N. W., Washington 6, D. C.

Leading Camera Producer Certified - The certification of Argus Cameras, Inc., Ann Arbor, Michigan brought to 192 the number of participants in the National Safe Transit Program. A number of other applications are now being processed.

- - - - -

New Laboratory Certified - Gaylord Container Corporation, St. Louis, Missouri, is the newest laboratory certification. There are now 42 Safe Transit laboratories located in 20 states and in different sections of the country. Each of these laboratories is authorized to conduct the Safe Transit tests for manufacturers seeking certification under the NST Program. A complete listing may be obtained from the National Safe Transit Committee.

- - - - -

NST Committee Meets - A meeting of the Policy and Coordinating Groups of the NST Committee was held on October 4 in Cleveland, Ohio. Members met in an all day session to review Divisional activities and to chart a program of action for the months ahead.

- - - - -

Technical Division Appoints New Member - P. W. Bush, Chairman of the NST Technical Division, has appointed K. P. Groat of York Corporation, York, Pa. to serve as a member of his Division. Within the next month, this Division will be releasing its first report on a study of conbur comparisons.

- - - - -

New NST Film Nears Completion - The final work is now being completed on a 17 minute color-sound film entitled, "The Safe Transit Story". Produced by the Technical Division, the film is expected to have an important role in the educational program of the Committee. It covers the Procedure for Pre-Shipment Testing of Basic Carloading as well as the NST Test Procedures for packaged products, and has been especially developed for use on the programs of manufacturing and carrier groups.

- - - - -

The Safe Transit Label - Since January 1955, thirty-four new companies have joined in the National Safe Transit Program. This has greatly increased the number of packaged products that are identified with the red and yellow Safe Transit label, and added to its impact upon carriers and consignees. In addition, many of the new companies have supplemented the educational programs of the Committee and carriers by giving wide publicity to their own use of the label. The recognition now accorded the label has made it such an integral part of the National Safe Transit Program that the Committee anticipates an even more pronounced role for it in the reduction of shipping damages, and will give the label equal featuring with Safe Transit Test Procedures in its educational program for 1956.

- - - - -

Carrier Program Features NST - The National Safe Transit Program was featured on the program of the Central Freight Claim Conference meeting in Toledo, Ohio on October 6 and 7. The group, composed of motor carriers domiciled in the states of Illinois, Indiana, Ohio and Michigan, was addressed by F. A. Petersen, Chairman of the NST Laboratory Division. His 45-minute presentation included a showing of the Safe Transit film, and a question and answer session.

- - - - -

New NST Emblem To Be Developed - To aid Safe Transit participants to further capitalize on the recognition that is being accorded the Program, the Committee is designing an NST Emblem for use on letterheads, invoices, and other printed material.

- - - - -

CHICAGO MILL helps RHEEM *Deliver Safely*

A lift truck operator stacks 82-gallon electric water heaters packaged in a Chicago Mill wirebound container.

Many leading appliance manufacturers depend upon Chicago Mill and Lumber Company to provide safe shipment for their finished products. They know that experienced engineers and crate designers have used the latest engineering principles and testing equipment to design the best container for their product. They know that they can count on a Chicago Mill container to deliver their valuable finished products safely.

If you are having difficulty in solving a troublesome shipping problem, call in a Chicago Mill representative. Technical information, packing information, and testing services are available without obligation.

Wirebound
Nailed or Hinge Corner
Cleated Plywood
Cleated Craveneer
Cleated Corrugated
Watkins Type Containers
Shop and Tote Boxes
Woodsteel Nesting Boxes

★

FOR DOMESTIC OR EXPORT
FOR PEACE OR DEFENSE

A shipping container for every shipping purpose.

FOR SAFER TRANSIT BY • TRUCK • BOAT • TRAIN • PLANE

CHICAGO MILL AND LUMBER COMPANY

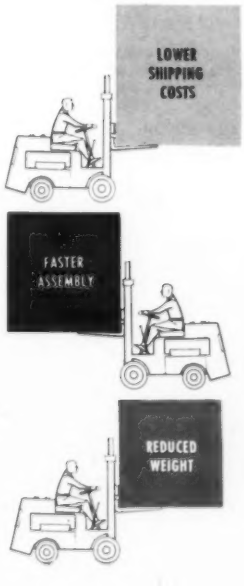
33 South Clark Street — Chicago 3, Illinois

Plants at: Helena, Arkansas • Greenville, Mississippi • Rockmart, Georgia
Tallulah, Louisiana • South Fork, Colorado • Chicago, Illinois

No matter where they're bound

SHIP THEM WIREBOUND !

and Stack 'em High As You Like



Modern handling methods call for quick and easy storage—in a minimum of space. The special Wirebound construction of strong steel wire and light, tough wood suits itself to modern methods of materials handling. You stack 'em fast, efficiently and high as you like. Shown above are some high-stacked Wirebound pallet boxes that are used for inter-plant shipments and parts storage. No other container is so perfectly suited to fork truck handling. They appeal to economy-minded management. We will be pleased to give you all details on versatile Wirebounds, regular or pallet boxes and crates.

MAIL THIS COUPON NOW!

Wirebound
BOXES & CRATES

WIREBOUND BOX MANUFACTURERS ASSOCIATION
Room 1154, 327 South LaSalle Street, Chicago, Illinois

- ☐ Have a sales engineer give me the whole story
- ☐ Send me a copy of "What to Expect from Wirebounds"

Name_____

Firm Name_____

Address_____

City, Zone and Sate_____

The SAFE TRANSIT label

Emblem of a New Age in Shipping

by Elizabeth O'Connor • ASSISTANT SECRETARY, NATIONAL SAFE TRANSIT COMMITTEE

THE story of the Safe Transit label always ends on the words "To be continued", for each year adds its own new chapter. The label and its accomplishments keep today's manufacturer from looking back with any wistfulness to the "good old days".

The Safe Transit label is helping to produce shipping results that yesterday's manufacturer would not have guessed were possible. Reduced transit damage, cost savings, and improved customer and dealer goodwill are just a few of the label's benefits.

Once the manufacturer stood at the end of his assembly line not knowing whether all his efforts to produce a better product were, in a sense, in vain. His packaged products had yet to reach their destination safely and there would be months of waiting for field reports before that could be known. In the interval thousands of shipments would have been made.

Today's manufacturer holds in his hands a red and yellow emblem, symbol of the National Safe Transit Committee and his participation in a voluntary and cooperative program that is reducing to a minimum the needless in-transit damages and losses.

Written on the emblem is the manufacturer's own pledge, telling a story in itself — "The manufacturer certifies that this packaged product meets the pre-shipment testing standards established by the National Safe Transit Committee and will withstand normal transportation and handling hazards." In a red panel above this statement is the bold-faced type message — "PRE-TESTED SAFE TRANSIT SHIPMENT". Beneath it in another red panel is the injunction — "MAKE SAFE HANDLING YOUR JOB!"

Why a label?

The National Safe Transit Program was less than a year old when its participants began to give attention to a means of identifying their packaged products that had met the Safe Transit test requirements. The pre-shipment tests, simulating actual transit conditions, assured the Safe Transit manufacturer prior to shipment that his products were designed and packaged to withstand normal transit conditions. He could attest to this with certainty, but he had yet to find a way to tell handling personnel that the responsibility for safe delivery of these products now rested in their hands.

The correlation test work of the National Safe Transit Committee had proven conclusively that maximum shocks encountered in a product's journey from manufacturer to consumer is during handling — either in the loading or unloading, or at transfer points. Meetings, of course, could be held with the higher echelon personnel, but some means of direct communication had to be found with each individual having anything to do with the movement and handling of freight.

The red and yellow Safe Transit label was designed to carry the message of pre-shipment testing directly to handling personnel. The story of the label is now rapidly moving toward the conclusion, "mission accomplished".

What the carriers say

This year representatives of the nation's leading carrier associations issued these statements:

Association of American Railroads

"Any manufacturer who fulfills his obligations under the National Safe Transit Program, meeting the Safe Transit pre-shipment test requirements, should be eager to use, and point with pride, to the Safe Transit Label. Our railroad employees have learned to recognize the LABEL and understand that a 'two-way street' requires both shipper and carrier cooperation to prevent damage."

C. A. Naffziger, Director
Freight Loss & Damage Prevention Section

American Trucking Associations, Inc.

"The National Safe Transit Label is recognized in our industry as an indication that the manufacturer has done his part to assure damage-free transportation and has extended his fullest cooperation. In recognition of this label, our employees realize a corresponding obligation to give products displaying this label the best possible handling to assure delivery in undamaged condition. It is our sincere hope that more and more manufacturers will subscribe to this program and become entitled to the privilege of affixing this label to their packaged products."

John M. Miller, Executive Secretary
National Freight Claim Council

Railway Express Agency

"If a manufacturer cares enough to pretest his packaged product and uses the National Safe Transit label, it proclaims that he is doing everything possible to live up to his obligations outlined in the National Safe Transit program. In such cases we will exercise every possible care and precaution wtih those packages that bear the label on the basis of the 'two-way street' — if the manufacturers do their part we, as a carrier, will do our part."

J. J. Toughey, Superintendent
Loss and Damage Prevention

Air Cargo, Inc.

"The airlines of the United States are constantly becoming more familiar with the National Safe Transit Label. The label's appearance upon shipments of both Air Freight and Air Express is strongly endorsed.

Any manufacturer who has met the rigid requirements for the label's use is doing everything possible to insure against damage in transit. Any airline employee is quick to appreciate this shipper co-operation and to extend his own efforts towards a delivery that is safe as well as speedy."

Emery F. Johnson
Vice President and General Manager

The carriers cooperate

From its very inception the National Safe Transit Program had the support of the above leading carrier associations. These groups featured the Program in their annual Perfect Shipping campaigns, articles and educational seminars. Carrier groups and individual railroads were quick to recognize that the National Safe Transit pre-shipment testing Program offered the first real solution to the staggering problem of in-transit damages. They welcomed the opportunity to give it their fullest cooperation. The question was only one of how to help in a way that would be of direct benefit to the Safe Transit participant. The initiation of the labeling program gave the answer to that question and the carriers swung into action.

Even in the early days of the Program with less than 50 manufacturers participating, poster replicas of the label were dispatched to all major handling points. Bulletins describing the labeling program and the pre-shipment testing story behind it were sent to key personnel.

Speaking for the National Freight Claim Council, American Trucking Associations, Inc., John M. Miller, Executive Secretary, said, "It is our obligation and pledge that we will instruct our own employees that shipments carrying the Safe Transit label

PRE-TESTED
SAFE TRANSIT
SHIPMENT
The manufacturer certifies that this PACKAGED PRODUCT meets the pre-shipment testing standards established by the National Safe Transit Committee and will withstand NORMAL transportation and handling hazards.
NATIONAL SAFE TRANSIT COMMITTEE
SAFE TRANSIT
1145-19th St. N.W. Washington 6, D. C.
MAKE
SAFE HANDLING
YOUR JOB!

will be accorded the best possible handling." His statement was underlined by scores of others and within a short time far reaching campaigns were underway to familiarize handling personnel with this new red and yellow emblem.

Ten million labels per year

Today over 10 million labels are used annually by certified manufacturers, and carrier groups have accordingly expanded their educational campaigns. The National Safe Transit Program film featuring the label is widely used at carrier meetings and a number of carriers have purchased copies for continuous use.

The Association of American Railroads highlights the Safe Transit label regularly in its publication "Perfect Shipping News", distributed monthly to more than 43,000 railroaders and 26,000 shippers and receivers of rail freight. In addition, copies of the label and background information on the NST Program are distributed and discussed regularly at the quarterly educational seminars of AAR — all part of a continuing campaign to acquaint railroad personnel with the manufacturer's emblem of participation in the National Safe Transit Program.

Furthering these educational programs is the work of individual railroads, traffic clubs and state associations. An example of the support given the Safe Transit label is two issues of Carolina Freight Carriers Corporation's publication, "Firing Line". Twice the booklet has been devoted exclusively to a pictorial story of the label that uses the dialogue of two cartoon figures to tell the label story.

Good will ambassador

The label was designed to improve handling of packaged products in transit, and thus further reduce damages. It was well on the way to achieving this objective when it became evident that this was not to be its only role. Consignees were quick to grasp that the manufacturer using the label had literally done everything possible to deliver a perfect product.

This recognition grew out of the continuing and intensive educational programs of the National Safe Transit Committee and other cooperating groups. Manufacturers began to see the label building good customer relations and increased sales.

This was not another "FRAGILE" label available for the purchasing. Only companies certified under the National Safe Transit Program were permitted to use it, and then only on packaged products that had met the pre-shipment test requirements established by the National Safe Transit Committee. The regulations governing the use of the label were eventually to win for it a new and important function. Today the Safe Transit is an "on the road" salesman for the Safe Transit certified manufacturer.

Safe Transit companies are more and more making the label an important part of their sales and public relations program. The following excerpt is from a bulletin recently sent by a newly certified company to

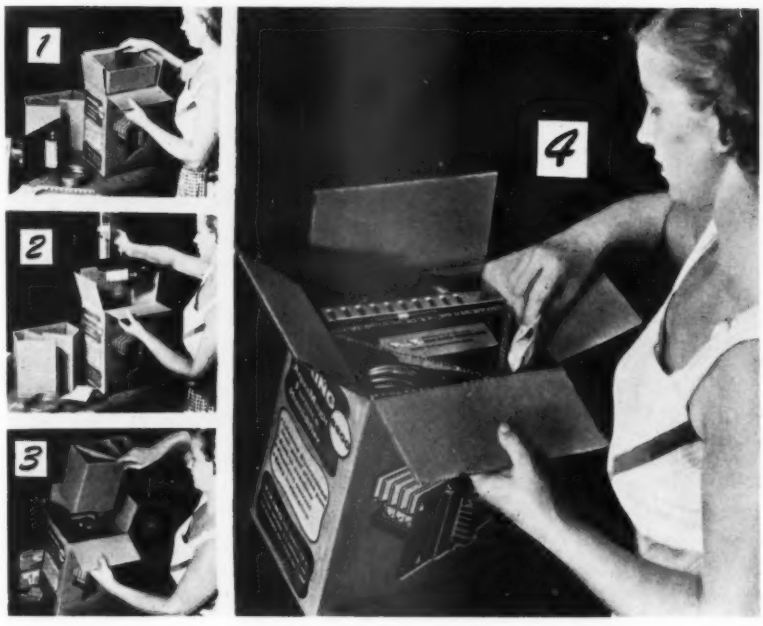
to Page ST-12 →

a century of experience behind the SUPERSTRONG symbol

SUPERSTRONG stands for timber reserves... saw mills ...veneer mills...wirebound, wooden and corrugated box plants... sales offices in many cities. This ownership and control of all materials and facilities — plus the tested experience and reliability of ONE HUNDRED YEARS — assure you of an ample supply of accurately designed and correctly manufactured shipping containers at all times. Be sure... specify SUPERSTRONG.

RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

PACKAGING THE AQUA-MAGIC HUMIDIFIER



A complex packaging problem is solved by a combination of exterior and inner-pack ideas in a corrugated carton designed for Viking Air Conditioning's new "Aqua-Magic Humidifier".

The design principles are said to offer a short-cut for many types of difficult and "tricky" product packaging.

The Humidifier's" odd shape, plus components making up the "kit", presented a possible need for considerable costly pre-packaging, die-cut fixtures, padding, etc. The package design provides 2 simple, easily applied, inner-pack sections to do the job at a reported savings for Viking.

A corugated "taped tube", scored and folded square to fit in the bottom of the carton as a sleeve "base", supports the product at its faceplate, holding it off the bottom of the carton. The "tube" also reinforces the sides and bottom of the box.

A flat, scored corrugated strip, folded into a compartmented unit and inserted on top of face-plate, between the product and the front of the carton, forms 3 different sized compartments for a box of accessories, a coil of tubing, envelope of fasteners and literature. It serves as a product top support and structural reinforcement for sides and top of the carton as well.

GAYLORD CONTAINER & CROWN ZELLERBACH MERGE

The board of directors of Crown Zellerbach Corp. and of Gaylord Container Corp. have adopted an agreement of merger of the two companies. The announcement was made jointly by J. D. Zellerbach, Crown Zellerbach's president, and Edwin J. Spiegel, Gaylord's president.

Crown Zellerbach, as the surviving corporation, will assume all obligations and ownership of the properties and other assets of Gaylord. Management and operation of these properties and sale of Gaylord's existing product lines will be carried on by Gaylord's present employees.

A new "Gaylord Container Corp." is to be formed with its directors and officers selected from Gaylord's present active management and operating personnel.

GAYLORD CONTAINER LAB CERTIFIED BY NST

Gaylord Container Corp., St. Louis, Mo., has been certified as a National Safe Transit laboratory.

"SORPTION OF WATER VAPOR BY CELLULOSE CUSHIONING MATERIALS"

The sorption of water vapor by cellulosic cushioning materials is the subject of a recent report of research by Army Ordnance, released by the Office of Technical Services, U. S. Department of Commerce.

Seven cellulosic materials frequently used to cushion sharp-cornered items packed in desiccated packages were tested at 100°F and 95% relative humidity to determine how much water vapor would be sorbed when silica gel disiccant was absent and when present but on the opposite side of the cushioning material to that of the hot humid air.

The report of this research details experimental procedure and lists

to ST-15 →

New Robert Gair Cleveland plant — *containing 92,500 square feet and housing the Ohio Corrugated Box Div. will fabricate and process shipping containers. Construction will begin early next year.*

→ *from Page ST-9*

approximately 500 industrial supply distributors located throughout the country:

> *"We are pleased to tell you that our company has been certified by the National Safe Transit Committee. Such certification entitles us to display the "Safe Transit" label on our packages—see sample attached. Look for these labels on our packages. They are your assurance that our products are being shipped for safe arrival.*
>
> *"Ours are fragile products—carefully handled in manufacture and in user's plants after arrival. Our shipments to you and your customers in accordance with the NST Test Procedures is added guarantee that everything that can be done is being done to keep them in safe condition."*

Other companies are using reproductions of the label in their advertising. One such company heads its advertisement, "This Means Money to You — NOW and for Years to Come." The label is then pictured with the explanatory copy, "This label helps to assure safe shipments and deliveries . . . to eliminate damages and claims". Another ad reads,

The objective of the NST educational program is that every handling employee, every claim agent, distributor and retailer will know the full story behind the Safe Transit label and the Safe Transit car placard.

This goal is being achieved through articles in industry publications, house organs, news releases, bulletins, direct mail and the SAFE TRANSIT NEWSLETTER. The Technical Division of the Committee will soon release its second color-sound film to feature the message of the bright red and yellow emblem. Also important in the program is the Safe Transit Speakers Bureau, whose members are kept active telling the Safe Transit story. At the invitation of carriers, industry, and other groups they will participate this coming year in programs held at such varying places as manufacturing plants, conventions, hotels and railroad yards.

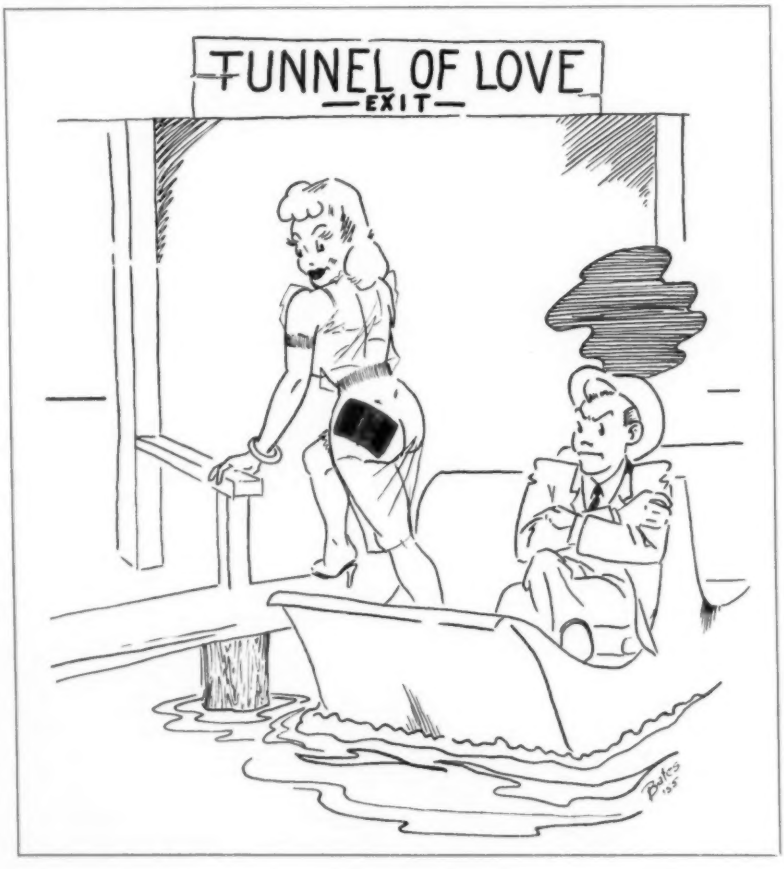
In addition, each month more and more manufacturers are becoming eligible to affix the label to their packaged products. It is anticipated that within a very few weeks an already impressive list of Safe Transit manufacturers will total well over 200 names. In all, the Safe Transit label is destined in the year ahead to have an even greater impact on handling personnel and customers alike. From assembly line to customer it will be heralding the manufacturer who has done his part to deliver perfect products.

These examples probably best illustrate the many ways in which today's manufacturer has expanded his participation in the Safe Transit Program into a public relations program. Once he confined his activities to adoption of the pre-shipment testing program. When the Safe Transit label was born, he was not only given an instrument for further reducing in-transit damages, but a means for improving customer relations . . . a good will ambassador.

NST educational program

The manufacturer is not dependent upon his own efforts to pass this information on to interested parties. To begin with, the label tells its own story. How well it does this is evidenced by dozens of letters that have been received by the Safe Transit Committee from manufacturers and others who have seen the label and written to inquire how they might secure the pre-shipment testing standards.

In addition to this and the countless educational programs being carried out by cooperating groups, the Educational Division of the NST Committee is conducting an extensive program of its own. This program is publicizing not only the label but also the Safe Transit car placard. The car placard was designed as a companion piece to the label, and is used by manufacturers to identify carload shipments of pre-shipment tested packaged products.

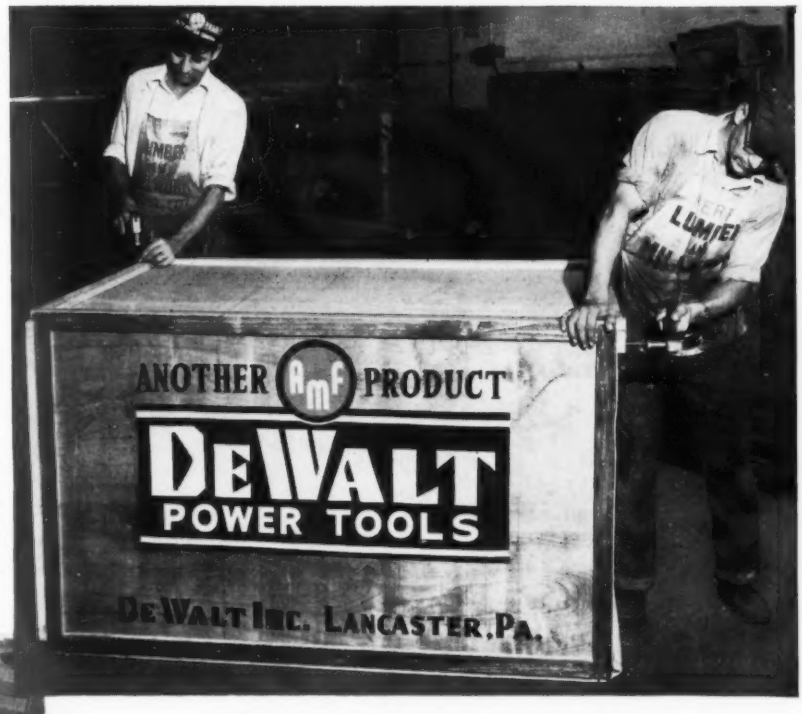


"We save *three ways* with Atlas Plywood cases"

President Conde' Hamlin tells how De Walt, Inc., cuts damage claims, packing time and container costs

"In putting our packaging problem up to Atlas Plywood," says Pres. Hamlin, "our main requirement was better protection for our woodworking machines during shipment.

"We got that protection — and a good deal more. Besides reducing our damage claims, the cases Atlas Plywood designed for us have cut packing time 20% — and they cost less than our old containers."



Getting down to cases

In De Walt power saws, the overhead mechanism calls for special cushioning against jarring and jolting in transit. Atlas Plywood lab-tested containers supply this protection. Eliminating paper shrouds, they're more secure against dirt, dust and water than the old containers. Their over-all strength, including stocking strength, is greater, too. De Walt profits by redueed damage claims — *plus the bonus advantages of faster assembly time and lower container-costs.*

Getting down to *your* cases

Are your present containers wasting your money — on too-high shipping costs or preventable product damage? Learn what Atlas Plywood containers can do for you — and how they earn their *lab-tested* label. Send for the big illustrated booklet, "How Atlas Plywood Cuts Your Shipping Costs . . . Safely." See your Atlas Plywood representative (listed in the classified phone directory) or write to Atlas Plywood Corporation, Dept. F-3, 1432 Statler Building, Boston 16, Massachusetts.

Atlas Plywood

CORPORATION

BOSTON 16, MASS. • DISTRIBUTORS IN ALL PRINCIPAL CITIES

PLYWOOD CONTAINERS • FLUSH DOORS • HARDWOOD PANELS

FROM AMERICAN FOREST TO FINISHED PRODUCT

AIM* for better securement of appliance shipments with Acme Steel Strapping Ideas

*Acme Idea Man Dick Powers, Fort Wayne, Indiana, continually services and contributes new ideas to all his customers

ask your
*Acme Idea Man
to help solve your problems

A recent survey of Bastian Morley Co., Inc. customers shows less than 1% in-transit damage when shipping water heaters with Acme Steel's "anchor load" technique. (Idea 449).

Acme Steel Unit-Load Band permits bracing many different size crates in one shipment. Anchor load allows "double decking" and makes possible meeting minimum car load shipment weight. You'll find that Acme Steel Strapping methods help speed preparation and reduce cost of bracing material. Customers welcome safe arrival and easy unloading.

There are many practical, money saving ideas for bracing appliance shipments. Your Acme Idea Man will gladly study your present system, demonstrate the excellent Acme Steel Strapping equipment and recommend the best strapping method for you. Call him at the Acme Steel Company listing in your telephone book. Or write for further information to Dept. RS-115.

ACME STEEL PRODUCTS DIVISION

ACME STEEL COMPANY

2840 ARCHER AVENUE, CHICAGO 8, ILLINOIS • ACME STEEL CO. OF CANADA, LTD., TORONTO

ACME STEEL

trade names and manufacturers of the materials tested. PB 111661 *Sorption of Water Vapor by Cellulosic Cushioning Materials*, Picatinny Arsenal, Feb. 1955, 11 pages, may be obtained from OTS, U. S. Department of Commerce, Washington 25, D. C., price 50¢.

BOOK OF PACKAGING TERMS

New The second edition of the *"Glossary of Packaging Terms"* — "the language of a ten billion dollar industry" — is available. It is a cloth-bound, hard cover, 6" x 9" book of over 250 pages of definitions. Every effort has been made to assure the accuracy of definitions by checking with acknowledged authorities in specific areas of packaging. Single copies are $6.75. Quantity prices are: 5 to 9 copies, one shipment, one destination, at $5.95 per copy; 10 or more copies, one shipment, one destination, at $5.00 per copy. Send orders to Packaging Institute, 342 Madison Ave., New York 17, N. Y.

MOTOR FREIGHT CARRIERS CLAIM RATIO AT ALL-TIME LOW

John M. Miller, chief, American Trucking Associations, Inc. Freight Claim Section, has announced that during 1954, 100 reporting motor common carriers reported total gross revenue for the year of $561,926,287; net loss and damage claim payments amounted to $5,746,304, a ratio of 1.02.

The .16 reduction for the year 1954 under 1953 indicates a 14% improvement.

PRESS DATE NEWS

ATLAS PLYWOOD ELECTS 5 VICE PRESIDENTS

Five new vice presidential appointments have been made by the board of directors of Atlas Plywood Corp., Boston, Mass., it was announced by Robert A. Muller, president. The appointments have been made in connection with the company's reorganization and expansion program.

Frank W. Harvey has been elected senior vice president in charge of operations. He joined Atlas Plywood in 1940 as general plant manager and was made vice president in 1951.

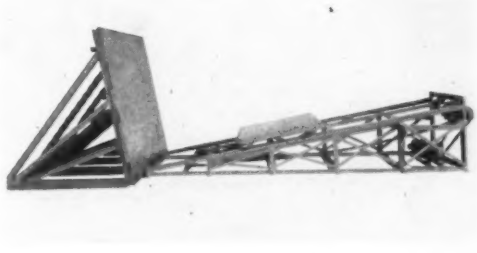
Charles V. Molesworth was elected senior vice president in charge of marketing. He has been president of Plywood, Inc., a partially-owned subsidiary which is being merged into the parent company.

Douglas M. Cowie, formerly production manager, has been elected vice president in charge of manufacturing. He will be directly responsible for the production of the entire network of more than 25 manufacturing plants.

Bert Cole, fromerly eastern regional vice president of Servel, has been elected vice president in charge of sales.

Stanley R. Venne, formerly vice president of sales, has been elected vice president in charge of timber and lands.

Quality Control
TEST EQUIPMENT



Incline Impact Testers — 1,250# to 6,000# Cap.
Vibration Testers — 100# to 6,000# Cap.
Remote Control Drop Testers

N.S.T. APPROVED

Special Compression, Fatigue, Shock & Shear Testers Designed & Manufactured.

LABORATORY FACILITIES AVAILABLE

Write for Complete Brochure
GAYNES ENGINEERING CO.
1642 W. FULTON ST. CHICAGO 12, ILL.

BIGELOW-GARVEY designs shipping crates for safe delivery of BATH TUBS

Engineered — To meet your specific requirements and to protect your product.
Pre-tested — In our own Certified N.S.T. Laboratory.
Safer — Exclusive B-G Tight Corner develops extra strength.
Economical — Factory assembled in 3 sections. Palletized for quicker handling and storage.
Time Saver — Hinged corners and pre-drilled nail holes for fast assembly.

MILLS: ARKANSAS GEORGIA WISCONSIN MINNESOTA ILLINOIS

always check BG
Write for complete details and prices to...
BIGELOW-GARVEY lumber company
General Office and Laboratory
320 W. HURON STREET • CHICAGO 10, ILLINOIS
Phone WHitehall 4-5252

→ *from Page 77*

High temperature coatings

D. G. BENNETT, University of Illinois

HIGH temperature resistant coatings have been developed to seal off heated metal from oxygen, offer insulation, reflect radiant energy, resist corrosion and to minimize friction.

Ceramic coated alloys have been found to outlast by several times other alloys with which they could not compete in the uncoated condition.

More is being learned about the composition needed to make ceramic coatings most stable at high temperature, their reaction to nuclear radiation, resistance to heats of conduction and impinging radiant energy, ability to seal incipient fatigue cracks and to absorb some of the fatigue stresses imposed on metal, etc.

The days of supersonic speed and structures bring with them critical metallurgical problems of heat containment, corrosion, erosion, fatigue and vibration.

more resumes in December

PORCELAIN ENAMEL INDUSTRY COORDINATING COMMITTEE MEETS

finishfoto

Chairs (left to right) W. H. Pfeiffer, Frigidaire; R. R. Danielson, Metal & Thermit Corp.; R. S. Dale, Ervite Corp.; Ralph L. Cook, University of Illinois; Fred Allenbaugh, Ferro Corp.; H. J. Holloway, Lawndale Enameling Co.; W. J. Plankenhorn, Chicago Vitreous Corp. Center row (left to right) Clark Hutchison, Ingram-Richardson, Inc.; R. W. Foraker, Titanium Pigment Corp.; James B. Willis, Pemco Corp.; A. O. Smith Corp.; G. H. Spencer-Strong, Pemco Corp.; W. M. Coffeen, Metal & Thermit Corp. Back row (left to right) Raymond J. Brown, Ceramic Industry; James Tustin, Rheem Mfg. Corp.; John D. Clark, Foote Mineral Co.; Joseph Richmond, Bureau of Standards; Robert F. Patrick, Pemco Corp.; R. L. Fellows, Century Vitreous Enamel Co.

The Coordinating Committee for the Porcelain Enameling Industry, which meets as an informal cooperative group to assist in the coordination of industry activities sponsored by the four District Enamelers' Clubs and is designed to include the interests of the Porcelain Enamel Institute and the American Ceramic Society, held a semi-annual luncheon meeting on Thursday, September 15, during the PEI Forum in Columbus, Ohio.

The chief subject for discussion was a program of assistance to the committee responsible for producing a bibliography of enamel literature for the years 1950 - 1954, inclusive (see page 63, October, 1955, *finish*).

Those who purchase this new bibliography at $5.00 each will have the privilege of buying previously published bound copies at one-half price — 1929-1939 at $2.50 — 1940-1949 at $4.00.

$25,000 architectural contest

→ *from Page 57*

Grand Prize will be $5,000. Twenty-four other awards will consist of first prizes of $3,000 in each division; second prizes: $1,500 each; third prizes: $1,000 each, and nine honorable mentions in each division: $500 each.

In addition to the cash prizes to be awarded the winners, the complete campaign sponsored by Ferro includes trade paper advertising in the architectural magazines and the supplying of a complete information kit to entrants. This information kit contains a booklet outlining all of the rules and necessary supplementary information. A second booklet "Porcelain Enamel in Architecture" serves as a designer's guide. Supplementing this information are individual pieces of literature and data sheets from 13 industry suppliers of architectural porcelain.

New York architect, Harold R. Sleeper, FAIA, has been appointed professional adviser for the competition. The jury will consist of architects Pietro Belluschi, Dean of the Massachusetts Institute of Technology School of Architecture and Planning; school designer John Lyon Reid; Eero Searinen; Hugh Stubbins; and engineer Edward X. Tuttle of Giffels & Vallet, Inc. and L. Rossetti, associated architects and engineers, of Detroit.

Winners will be announced in *finish* early in 1956.

KAISER ALUMINUM BUYS PLANT

Kaiser Aluminum & Chemical Corp., Oakland, Calif., has announced its purchase from the General Services Administration of the aluminum extrusion plant at Halethorpe, Md., which it has been operating since 1951 under the terms of a lease.

OLIN MATHIESON SALES MGR.

H. F. Devens has been appointed sales manager for Roll Bond, D. T. Marvel, vice president in charge of sales of the Metals Div., Olin Mathieson Chemical Corp., New York City, announced.

Steel kitchen cabinet manufacturers meet

(Continued from Page 55)

Left to right, R. E. Nellis, Nellis Industries, Inc.; F. E. O'Connor, Geneva Kitchens; D. R. Barber, Geneva Kitchens.

Left to right, W. W. Follett, United Metal Cabinet Corp.; C. L. Stoup, Tracy Kitchens; C. A. Reinbolt, Jr., Tracy Kitchens.

→ *from Page 55*

tics, finance and budget, traffic committees, and the board of directors meeting. J. T. Miller, Director of Research, Meredith Publishing Company, was the guest speaker at the luncheon preceding the general meeting.

Cooperation with appliance manufacturers for standardization

Action leading to closer communication between the steel kitchen producers and appliance manufacturers on problems of standard sizes, color, and other matters of mutual interest, was recommended and approved by the membership.

Harry Lawrence, of Capitol Kitchens, new president of the steel kitchen association, presided at the meeting. Attending were representatives of American Kitchens, American-Radiator, Beautycraft, Capitol Kitchens, Crosley-Bendix, General Electric, Geneva, Harrison Steel Cabinets, Kaiser Metal Products, Lyon Kitchens, Marvel Metal Products, Kelvinator Kitchens, Youngstown, Murray Manufacturing, Nellis Industries, Republic Steel Kitchens, St. Charles Kitchens, Tracy and United Metal Cabinet Corp.

Arthur J. Tuscany, Jr., executive secretary of the association, announced that the next meeting will be held in the Waldorf-Astoria, New York, February 9 and 10, 1956.

NEWS

MAGIC CHEF PURCHASES DORTCH STOVE WORKS

Cecil M. Dunn, president, Magic Chef, Inc., St. Louis, Mo., has announced the acquisition of operating assets, trade names, tools and facilities of the Dortch Stove Works, Franklin, Tenn.

WHIRLPOOL-SEEGER BUYS I-H EVANSVILLE PLANT

International Harvester Co., Chicago, has announced that it has sold the plant and property of its Refrigeration Div. at Evansville, Ind., to Whirlpool-Seeger Corp., and is going out of refrigerator, home freezer and air conditioning business.

Transfer of the property is not to be later than March 31, 1956.

SIMMS IS GEN. MGR. HAMILTON, OHIO, ESTATE DIV.

Ellsworth W. Simms has been appointed general manager of the Hamilton, Ohio, Estate Div., Whirlpool-Seeger Corp., it was announced by D. W. Alexander, vice president of Whirlpool-Seeger.

Joining the original Estate Stove Co. as a foreman in 1929, Simms has held a number of executive engineering and manufacturing positions in the ensuing 26 years.

NEW PMI BUILDING

The Pressed Metal Institute has opened a new national headquarters building at 3673 Lee Road in Cleveland.

HOTPOINT FORMS PRODUCT DEPARTMENTS

Based on predictions of its business volume in 1960, Hotpoint Co., Chicago, has realigned its organization into product departments in order to permit growth, John C. Sharp, president, announced.

Heading the new departments are: John F. McDaniel, range and component parts; Orrin E. Wolf, refrigeration; Ralph M. Spang, home laundry; Edward M. Haines, dishwasher, water heater and custom appliances; William C. Ayres, commercial equipment; William A. Kissock, relations and utilities; and Irvin L. Stephenson, legal.

Each product department is a self-contained unit which has full responsibility for all aspects of producing and selling major electric appliances.

NEWS ABOUT SUPPLIERS

GEUDER, PAESCHKE & FREY SALES MANAGER

Robert C. Colyer has been appointed sales manager of the contract division of Geuder, Paeschke & Frey Co., Milwaukee, Wis. The appointment, created by a consolidation of the firm's contract and defense divisions, makes Colyer responsible for the sales of all contract metal fabricating and finishing work. He was previously general manager of Elbeeco, Inc., Jackson, Mich., and has been associated with Aeroquip Corp., Colyer Products, Inc., Beaman and Langford, and Sears, Roebuck & Co.

IMHOFF IS ROBERTS BRASS VP

Robert E. Imhoff has joined Roberts Brass Mfg. Co., Mitchell, Ind., as vice president in charge of engineering and development, announced L. C. Smith, Jr., president. Imhoff was formerly an engineer with Detroit Brass & Malleable.

FULLER JOINS ING-RICH

R. H. Coin, president, Ingram-Richardson, Inc., Frankfort, Ind., has announced the appointment of Lee Fuller to the frit sales and service staff. Fuller was formerly employed in the research and development laboratories of Pemco Corp., Baltimore, Md., and was a ceramic engineer for Globe American Corp., Kokomo, Ind., for the past three years.

EMMETT TO DETREX BOARD

Robert A. Emmett, Jr. has been elected vice president of the Detrex Corp., Detroit, at a recent meeting of the board of directors.

Emmett has been associated with Detrex for nine years.

JOHN ROWE TO BINKS' BOARD

John E. Rowe has been elected to the board of directors of the Binks Mfg. Co. He is vice president in charge of the advertising and industrial relations departments.

Rowe started in 1935 in Binks' Chicago plant. He became a field representative, and in 1941 he established an office for Binks in Washington, D.C. He assumed his current position in 1953.

ADMIRAL TEMPLE NAMED ROBERTSHAW-FULTON V P

Rear Admiral Harry B. Temple, USN has been named assistant vice president of Robertshaw-Fulton Controls Co., Washington, D. C. office, it has been announced by John A. Robertshaw, president.

Kaiser Aluminum & Chemical Corp. — *integrated aluminum sheet and foil rolling mill now under construction on a 2500-acre Ohio River site near Ravenswood, W. Va., will represent an investment of approximately $100-million.*

THATCHER HATCH

D. R. GOETCHIUS

HATCH RETIRES AS UNION STEEL'S HEAD OF RESEARCH

C. Thatcher Hatch, Jr., director of research and development, Union Steel Co., has retired after 38 years with the company. In 1917 he joined Union Steel as assistant superintendent. He has held the positions of superintendent, chief engineer, vice president and manager of the Equipment Div.

GIEFER TO UNION STEEL

According to an announcement made by W. C. Neumann, sales manager, Wire Products Div., Union Steel Products Co., Albion, Mich., H. M. Giefer has been appointed to the company's sales staff in the capacity of direct factory representative covering the states of Minnesota and Wisconsin with the exception of Milwaukee.

PITTS. PLATE UPS ETHIER

Walter W. Ethier, Jr., formerly manager of the Atlanta Paint Div., Pittsburgh Plate Glass Co., has been named general manager of the Newark, N. J., Paint Div., according to E. D. Peck, vice president in charge of the Paint and Brush Div.

ARMCO PLANS EXPANSION

Armco Steel Corp., Middletown, Ohio, is stepping up its 1955 expansion and improvement program, W. W. Sebald, president, has announced. The Armco board of directors has approved an increase in the program from the $60 million announced earlier this year to $111 million.

The program will add 1,176,000 tons to Armco's present 4,950,000 capacity.

ROBERT IMHOFF

LEE FULLER

JOHN MC CORD

JOHN ROWE

ROBERT COLYER

W. W. ETHIER

ALCOA & EKCO PRODUCTS FORM NEW COMPANY

The formation of a new company which will manufacture and sell aluminum foil containers has been announced by Aluminum Co. of America and Ekco Products Co.

The new company, which will be owned jointly by the two companies, will be known as Ekco-Alcoa Containers, Inc., and will have its headquarters in Cook County, near Wheeling, Ill.

HOUDAILLE-HERSHEY OF INDIANA SALES MANAGERS

Houdaille-Hershey of Indiana, Inc., has announced the appointments of W. S. James as eastern district sales manager; J. D. Weatherford as western district sales manager; and Carl F. Holland as southern district sales manager.

NEW FERRO POSTS FOR McCORD & GOETCHIUS

Appointment of John R. McCord to the staff post of director of public relations, advertising and market research of Ferro Corp., Cleveland, was announced by C. D. Clawson, president. In this position he will coordinate these activities of the Ferro subsidiaries and divisions.

McCord joined Ferro in 1953 as manager of ceramic sales and was formerly associated with the Owens Corning Fiberglas Corp., Toledo, Ohio.

The appointment of Donald R. Goetchius to the position of manager of ceramic sales in the Frit and Glaze Div., Ferro Corp., Cleveland, has been announced by W. N. Noble, vice president.

In his new position Goetchius, a veteran of seventeen years with Ferro, will direct sales activities of seven sales districts through the United States.

SHELL CHEMICAL UPS YARBROFF

David L. Yarbroff has been named manager of the market development department of Shell Chemical Corp., New York, it was announced by R. C. McCurdy, president.

FOWLER, SPOERER, VPS YOUNGSTOWN SHEET & TUBE

William E. Fowler and Herman J. Spoerer have been elected vice presidents of The Youngstown Sheet and Tube Co., Youngstown, Ohio. Fowler was general traffic manager, and Spoerer was director of industrial relations.

PATTERSON FOUNDRY APPTS.

Richard L. Cawood, president, The Patterson Foundry and Machine Co., East Liverpool, Ohio, has announced the election of John M. Roberts IV as executive vice president and Dean M. Wilhelm as vice president and technical adviser. Thomas G. Coyne is controller.

KAWNEER APPOINTMENTS

Henry W. Zimmer, executive vice president, Kawneer Co., Niles, Mich., has announced the appointments of George Shevlin as corporate director of public relations and W. J. Woodruff as general manager of the appliance products division.

DU PONT WEST COAST PLANT ADDITION

Plans for a multi-million dollar addition to the new E. I. du Pont de Nemours & Co., Inc., plant now under construction near Antioch, Calif., have been announced by the company. The unit will be operated by the Electrochemicals Dept.

PITTS. PLATE NAMES HILL, PECK GENERAL MANAGERS

Appointment of Harold H. Hill as general manager of automotive finishes for Pittsburgh Plate Glass Co. has been announced by E. D. Peck, vice president in charge of the paint and brush division.

John F. Green has been appointed general manager of the Ditzler Color Div. in Detroit.

Walter Dreis, president (right), greets J. W. McNulty (left) and Ernie Steger who are retiring after a combined service of over 80 years with Dreis & Krump, Chicago.

ADVERTISERS' INDEX

	PAGE
ACKERMANN MFG. COMPANY	10
ACME STEEL COMPANY	ST-14
AMERICAN NICKELOID CO.	62
ARMCO STEEL CORPORATION	1
ATLAS PLYWOOD CORP.	ST-13
BIGELOW-GARVEY LUMBER COMPANY	ST-15
BINKS MANUFACTURING CO.	64
BURDETT MANUFACTURING CO.	34
CENTURY VITREOUS ENAMEL CO.	45
CERAMIC COLOR & CHEMICAL MANUFACTURING CO.	2nd Cover
CHICAGO MILL & LUMBER CO.	ST-6
CHICAGO VITREOUS CORP.	24
COORS PORCELAIN COMPANY	30
CUYAHOGA SPRING COMPANY	68
DANIELSON MFG. CO., V. W.	19
DU PONT DE NEMOURS COMPANY, INC., E. I.	78, 80
FAHRALLOY COMPANY, THE	46
FERRO CORP.	70
FOOTE MINERAL COMPANY	25
GAYNES ENGINEERING CO.	ST-15
GRAND RAPIDS VARNISH CORP.	13
HOMMEL COMPANY, THE O.	31
INGRAM-RICHARDSON, INC.	27
INTERNATIONAL PAPER CO.	ST-4
KAISER ALUMINUM & CHEMICAL CORP.	5
KING-SEELEY CORPORATION	11
LUX CLOCK MFG. CO., THE	71
MACCO PRODUCTS COMPANY	16
MARSCO MANUFACTURING CO.	4
McDANEL REFRACTORY PORCELAIN COMPANY	72
MILLS PRODUCTS, INC.	6
NAGEL-CHASE MFG. CO.	68
NATIONAL LOCK COMPANY	9
NEWCOMB-DETROIT	63
NEW MONARCH MACHINE & STAMPING COMPANY	81
NEW PROCESS D-ENAMELING CORPORATION	48
NORTHWEST CHEMICAL CO.	26
PEMCO CORPORATION	60
PENNSYLVANIA SALT MFG. CO.	44
PITTSBURGH PLATE GLASS CO.	104
PYRAMID MOULDINGS, INC.	63
RANSBURG ELECTRO-COATING CORPORATION	14, 15
RATHBORNE, HAIR & RIDGWAY BOX COMPANY	ST-10
REYNOLDS METALS COMPANY	51, 52, 53, 54
ROSS ENGINEERING CORP., J. O.	12
SHELL CHEMICAL CORP.	2
SHERWIN-WILLIAMS CO., THE	39
SOUTHERN SCREW COMPANY	43
SPEE-FLO COMPANY, THE	103
STEVENS, INC., FREDERIC B.	69
STRUTHERS WELLS CORP.	3rd Cover
TITANIUM PIGMENT CORP.	56
TUTTLE & COMPANY, H. W.	18
TUTTLE & KIFT, INC.	4th Cover
UNION STEEL PRODUCTS CO.	20
VANCE INDUSTRIES, INC.	7
WATKINS CONTAINER MFRS.	ST-2
WEAN EQUIPMENT CORP.	75
WIREBOUND BOX MFRS. ASSN.	ST-7
YOUNGSTOWN METAL PRODUCTS	8

Customer Service YORK ST. AT PARK AVE., ELMHURST, ILLINOIS

"I saw your ad in finish"

CLASSIFIED ADVERTISING

FOR SALE

ELECTROSTATIC PAINT SPRAY UNIT

Ashdee Electrostatic Paint Spray unit for sale, priced reasonably for quick disposal. Condition, slightly used. Address reply to Box 1152, c/o *finish*, York St. at Park Ave., Elmhurst, Ill.

HELP WANTED

MANUFACTURERS REPRESENTATIVES WANTED — Manufacturers Representatives to sell well known line of electrostatic paint spray equipment. Should have experience and contacts to handle this type of equipment. Various territories available. Address reply to Box 1151, c/o *finish*, York St. at Park Ave., Elmhurst, Ill.

ELECTRICAL OR MECHANICAL ENGINEER

Situation open: experienced in heating devices, especially space heaters and stove burners. 25 to 35. Excellent opportunity for product development work with progressive manufacturer. Apply to: Mr. J. R. Blizard

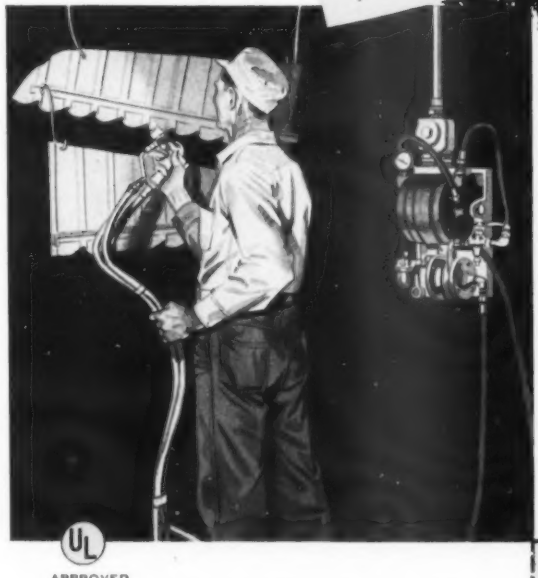
Corning Glass Works
Corning, N. Y.

SERVICEMAN WANTED

Industrial paint manufacturer needs an experienced man to service metal accounts. This man should be well versed in metal preparation; spray, electrostatic and roller-coater application; and all types of curing ovens.

Must have knowledge of wrinkle, hammer and conventional metal industrial coatings. Will work generally in mid-western states.

In reply, please give full detail of past experience, age, etc. A personal interview at our expense is desirable. Reply to Box 1153, c/o *finish*, York St. at Park Ave., Elmhurst, Ill.



SUPERIOR FINISH IN LESS TIME AT LOWER COST

OUR wide range of applications includes radios to kitchen cabinets, hot water heaters to new motor cars.

Let us prove to you with facts and figures how other firms in your field are using SPEE-FLO Hot Spray Heaters to reduce production costs with labor and material savings.

Faster application of high solids film permits one coat to do the job of two coats.

Material viscosity *reduced by heat* allows lower atomizing pressures . . . sharply reduced overspray cuts material consumption.

SIMPLE • EFFICIENT • MAINTENANCE FREE

Don't Delay – Mail Today!

SPEE-FLO Hot Spray equipment merits your consideration

UL APPROVED

SPEE-FLO

HOT SPRAY HEATERS

720 POLK AVE. • HOUSTON, TEXAS

THE SPEE-FLO CO., Dept. 1x-5, 720 Polk Ave., Houston, Texas
Builders of practical industrial and automotive hot spray equipment.

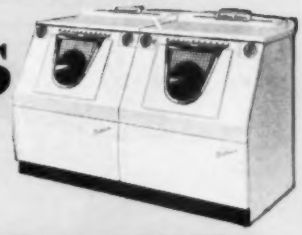
Please send me information on your line of hot spray heaters best suited to our work. Type of products being finished_____
Application is conveyorized____ turntable____ mobile____ other____
Average volume of material per gun per hour_____
Type of material_____ Please have representative call_____
Name_____
Company_____
Address_____
City_____ State_____

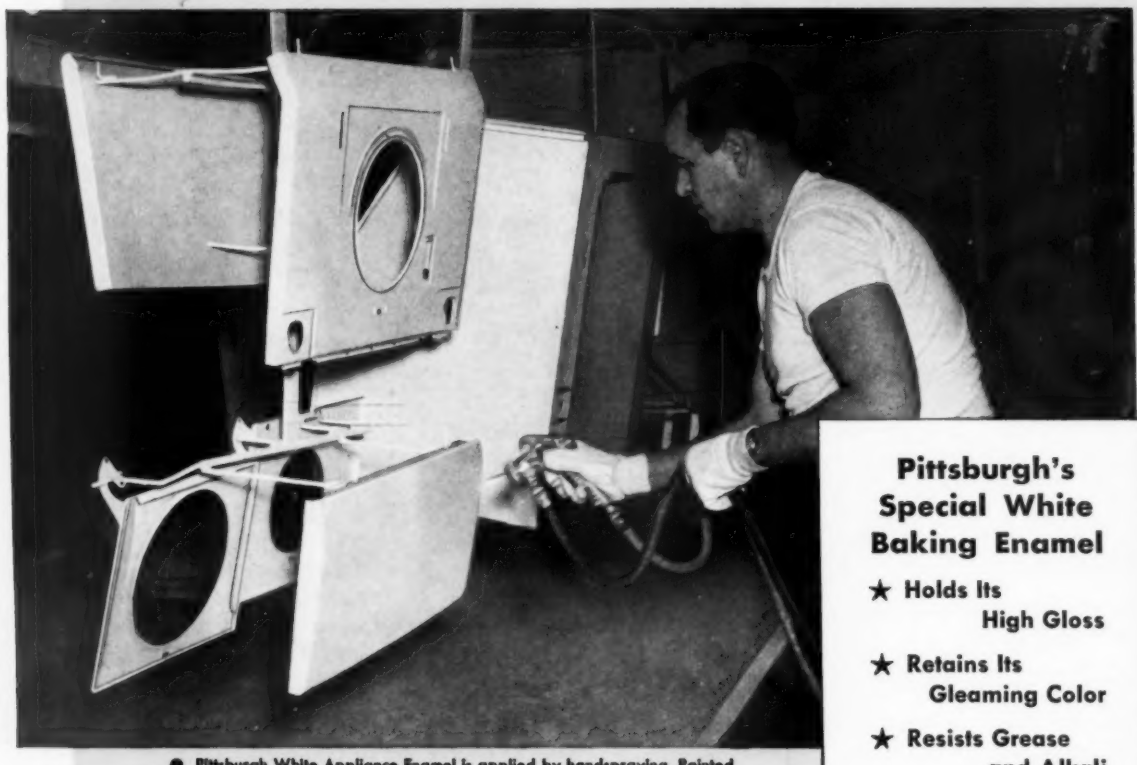
5141

Here's Why Famous

Westinghouse Laundromats

Keep Their Initial Beauty Longer!





● Pittsburgh White Appliance Enamel is applied by handspraying. Painted panels are baked for approximately 30 minutes at 300 degrees Fahrenheit.

Pittsburgh's Special White Baking Enamel

★ Holds Its High Gloss

★ Retains Its Gleaming Color

★ Resists Grease and Alkali

Outstanding for durability, color holding and gloss retention, Pittsburgh's special White Baking Enamel contributes to the popularity of such nationally known Westinghouse home equipment as "Laundromat" washers and dryers, electric dishwashers, roaster ovens and hot water heaters.

By working with the technical and production staffs of Westinghouse, Pittsburgh has developed finishing materials of exceptional high quality to meet a variety of performance standards.

Pittsburgh's special White Appliance Enamel is simply and easily handsprayed. It dries in half an hour to a rich gloss that enhances the initial beauty of these products. This beauty is matched by a toughness that keeps them looking new longer.

The finish is so durable and flexible that it possesses unusual mar resistance. It also withstands the dulling effects of heat, moisture, grease and the alkalies and other chemicals used in today's detergents.

Our wide experience in supplying all kinds of appliance finishes to leading appliance manufacturers may save you time and money. Write, wire or call Pittsburgh Plate Glass Company, Industrial Paint Division, 1 Gateway Center, Pittsburgh, Pa.

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED